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No. 2.

Abuse of Passenger Privileges on Freight Vessels.

Vessel men in all parts of the lakes are again complaining bitterly of the abuse of passenger privileges on freight boats. Many of them are hoping that the government officials will step in and levy heavy fines on a wholesale plan, enforcing the law against all vessels that are not licensed to carry passengers. Only a small number of the freight steamers are licensed to carry the few passengers that are provided for in an extra sleeping room or two connected with the crew's quarters, and yet the number of passengers that have been carried on the freighters thus far this season runs into the thousands. It is strange that united action is not taken by the regular passenger lines against the abuse of a privilege that should be confined to the ship owner and his immediate friends. The men who own the vessels would certainly welcome any action that might be taken by passenger lines. In some cases they are forced, under difficulties which they encounter in securing cargoes, to actually turn over the passenger accommodations of their vessels for a whole month at a time to the shipper who furnishes them with a few loads during the season. Such a condition does not exist anywhere else in the world.

"I have now on a book set aside especially for the purpose," says the manager of a large Cleveland fleet, "a list of more than 100 people with whom we do business who are pressing us for 'a trip up the lakes,' and in most cases the privilege is not asked for themselves, but for stenographers, ministers, relatives and people with whom we have no dealings whatever and to whom we are under no obligation. This passenger business has been a nightmare with me of late, and it seems to be growing worse every season. It is a problem that must sooner or later be taken up by the vessel men and dealt with in a determined manner. Not long ago I thought of getting some relief by shifting a portion of the complimentary passenger list to boats managed at the head of the lakes. I wrote the manager of one of the Duluth offices telling him that they should bear a part of the burthen. He was willing to take a share of it on two or three boats of a big fleet that were not as yet engaged for the full summer season, but his answer indicated a similar condition of affairs at the other end of the line. He named, among the people to whom he could not say no when application was made for passenger privileges, the general managers of coal companies at Minneapolis and St. Paul, who usually ask for accommodations for parties of six to ten when they go themselves, and who work in almost their entire office forces in the course of a season. Then there are the coal dock superintendents at Duluth and Superior and their friends; the grain elevator managers, the state weighmasters, and a long list of employees connected with these several interests, who are offended if their applications are refused, and who are often in a position, if they are so disposed, to favor one ship as against another so as to cause a loss or gain of time in port. You will see, therefore, that the trouble is general throughout the lakes. Even the iron ore and pig iron sales agents complain that when they go out to sell to the furnace men or the mills they meet with requests of this kind all through Ohio and Pennsylvania, and would often take chances of losing a sale if they attempted to discuss the injustice of such requests."

Lake Freight Matters.

A moderate general improvement in lake freights has developed within the past few days. Unusual delays at upper and lower lake ports, due to various causes on both railways and docks, have retarded the movement of the lake fleet so that there is now a surplus of Lake Michigan coal cargoes at Ohio ports, as well as Buffalo, and there is also less difficulty in securing ore cargoes. Advices from Duluth brokers indicate a disposition at the head of the lakes to make preparations earlier than usual for moving grain, but, of course, at very low rates. On a couple of trips with wheat from Duluth to Lake Ontario, the cargoes to be taken between Sept. 1 and 15, only 3 and 3¼ cents was offered in an inquiry for tonnage made a few days ago. The only real encouragement to vessel men is the fact that more business is showing up.

In a summary of ore shipments to July 1, published a week ago, it was shown that the output from all ports to that date was 4,612,193, or a gain of 1,461,884 tons over the output on the same date a year ago. This is a very heavy increase, but it must be noted that it was due mainly to a big output on the opening of navigation in April, and that May shipments in 1897 were lower than in the month of May for five years previous. The comparison is not, therefore, altogether fair when made with 1897. It is more than probable, also, that shipments during the present month will fall below the shipments of July a year ago, which was a very heavy month in the ore trade. The fact, also, that stock piles are reduced this year more than ever before will tend to reduce the output of August as well as July in comparison with the same months of 1897.

Mr. Walter Merivale writes to the Review from Bridgetown, Barbados, West Indies, to correct the statement made in these columns some weeks ago that the United States government owns the only known deposit of gilsonite. Mr. Merivale states that he owns a deposit of the substance, 2,000 acres in extent, and has already exported nearly 3,000 tons of it. This variety of asphaltum is known in the Barbados as man jak; in Trinidad as glance pitch, and in Utah as gilsonite.

Irving Scott of the Union Iron Works, San Francisco, is returning to the United States from Russia, whence he was summoned for consultation regarding naval construction. Cable dispatches state that his mission was successful.

Shipments from the Chandler iron mine, Vermillion range, are very active. The output to July 1 aggregates 250,000 tons.

Proceedings Against Minnesota Ore Railways.

Duluth, Minn., July 20.—Proceedings against the two ore railways of this state, so long talked of by the so-called independent mine owners, are finally under way. Practically all the testimony of the complainants has been submitted, and that of the railways will be heard during the latter part of the present week. It is the general opinion, from the testimony thus far taken, that Dr. Conan and John G. Brown, who are interested mainly as fee owners of the Pioneer mine, Vermillion range, are practically alone in the proceedings against the railways. Oglebay, Norton & Co. of Cleveland, who represent the lessees of the Pioneer mine, do not seem to be connected with the case in any way. Neither is it probable that Thomas Bardon of Ashland, who is at the head of the mining company, has anything to do with the present action. The fee owners of the Pioneer have allowed the mine to be shut down, refusing to further reduce the royalty unless rail rates were reduced, although the company operating the mine lost \$40,000 last year, has never made any money out of it, and is now shipping only from stock piles. It is the general opinion since the hearing was begun that the Pioneer people have not made a very strong case, and there is considerable disappointment among those who had expected great developments as to the earnings of the railways. Everybody understands, of course, that the railways—Duluth, Mesabi & Northern, controlled by John D. Rockefeller and Duluth & Iron Range, controlled by the Minnesota Iron Co.—are money-making properties, but the successful operation of them has depended upon the expenditure of immense sums of money in the development of Minnesota mines.

The hearing during the closing days of last week before the state board of railway and warehouse commissioners brought out some interesting testimony, the trend of which was altogether an effort to show big earnings by the railways, which are said to reimburse the Minnesota company and the Rockefeller interests for very small margins on ore. The complainants are represented by W. W. Billson and Judge Dickinson. On the other side are Frank B. Kellogg and J. H. Chandler for the Duluth & Iron Range road, and G. Wellwood Murray and J. B. Colton for the Duluth, Mesabi & Northern. F. T. Gates, representing John D. Rockefeller, was present throughout the proceedings, as was also State Attorney W. H. Childs of Minnesota. The argument of the complainants preceding their testimony was the same as that which has been heard here since the two big concerns came into control of the principal mines of the state. It is summed up in the single statement that they can afford to run their mines without profit because of the great earnings of the railways. In his testimony before the commission, Mr. Brown of the Pioneer company was asked for the stockholders of the mine and their holdings. He could not give all of them. He held 1,200 shares at par, \$25, and the capital is \$1,000,000. Oglebay, Norton & Co. hold 13,000 shares. Senator Spooner, he thought, held 4,000 shares, and Phipps & Humberg the same. Dr. Conan and Mr. Bardon also held 4,000 shares. The witness was not an officer of the company, and Dr. Conan is the only other Pioneer stockholder joining in the complaint. The fee is owned by Dr. Conan, Martin and William Patterson and Robert Whitesides. The royalty is 35 cents, having been reduced from 50 cents. The royalty has been on a minimum of 20,000 tons since 1887.

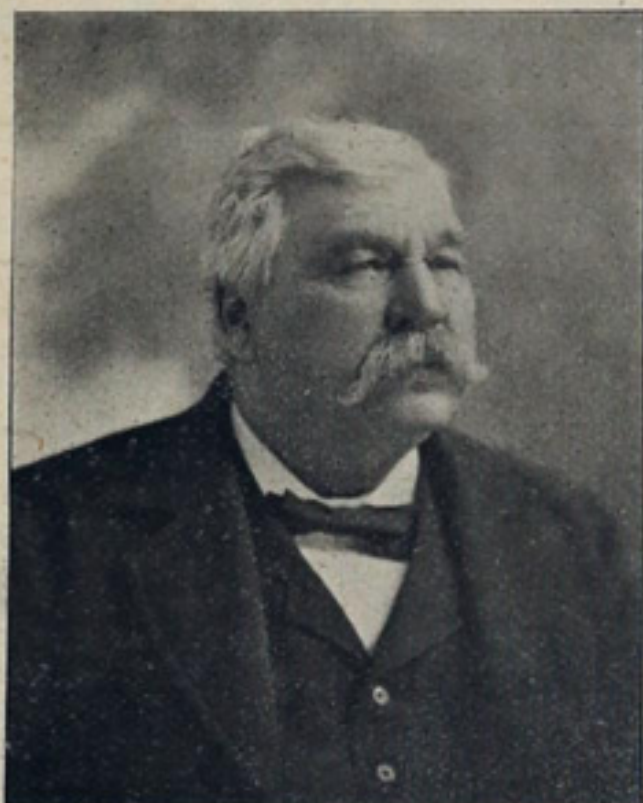
Finishing the Bessemer Line Ships.

West Bay City, Mich., July 20.—One of the three Bessemer line vessels at F. W. Wheeler & Co.'s works, the barge John T. Fritz, left here today, going to Lake Superior for a cargo of ore. Work on the steamer Samuel F. B. Morse and the second barge still under construction is being hurried. It is expected that the steamer, with machinery, boilers, etc., aboard, will be launched July 27. Several of the concerns that furnished supplies for these vessels to F. W. Wheeler & Co. before the assignment have brought action for recovery, but in each case bonds were furnished by the Bessemer company and such supplies held on the claim that all material going into the ships was paid for when it entered the yard and thus became the property of the Bessemer company. This is a matter, however, that will not be determined until the vessels are finished and an effort is made to settle up the general tangle that has resulted from the failure. It is understood that F. W. Wheeler has been trying to make arrangements to become interested in ship building at some point on the Atlantic coast, now that there is a prospect of activity in ship building operations in and around New York, Baltimore and other eastern points.

The torpedo boat destroyer Farragut was launched on Saturday at the Union Iron Works, San Francisco. It is interesting to note that she is built on the lines of the British torpedo boat destroyer Desperate, although improvements have been made in the design. The Farragut is of the same length as the Desperate, 210 feet, but is of less beam, the Britisher being 21.6 feet and the Farragut 20 feet. The Desperate has a maximum draught of only 5.3 feet, while the American boat will draw one foot more. The displacement of the Desperate is 300 tons and the Farragut 273. Both boats are classed as thirty-knotters and each is fitted with two torpedo tubes. The coal capacity of the Desperate is eighty tons, and that of the Farragut about the same. Both are built of the best nickel steel and are unarmored. The contract price of the Farragut was \$227,500, and that of the Desperate \$185,000.

"The Cramps are going to spread themselves on the cruiser to be built for Russia," says a Philadelphia correspondent. "It is evident from what is said around the ship yard regarding this vessel that it is the intention to make her, if possible, the finest cruiser in the world. If the Cramps succeed in this lofty aim they will not only be helping themselves but will help the ship building industry of the whole country."

Death of Capt. Frank Perew.

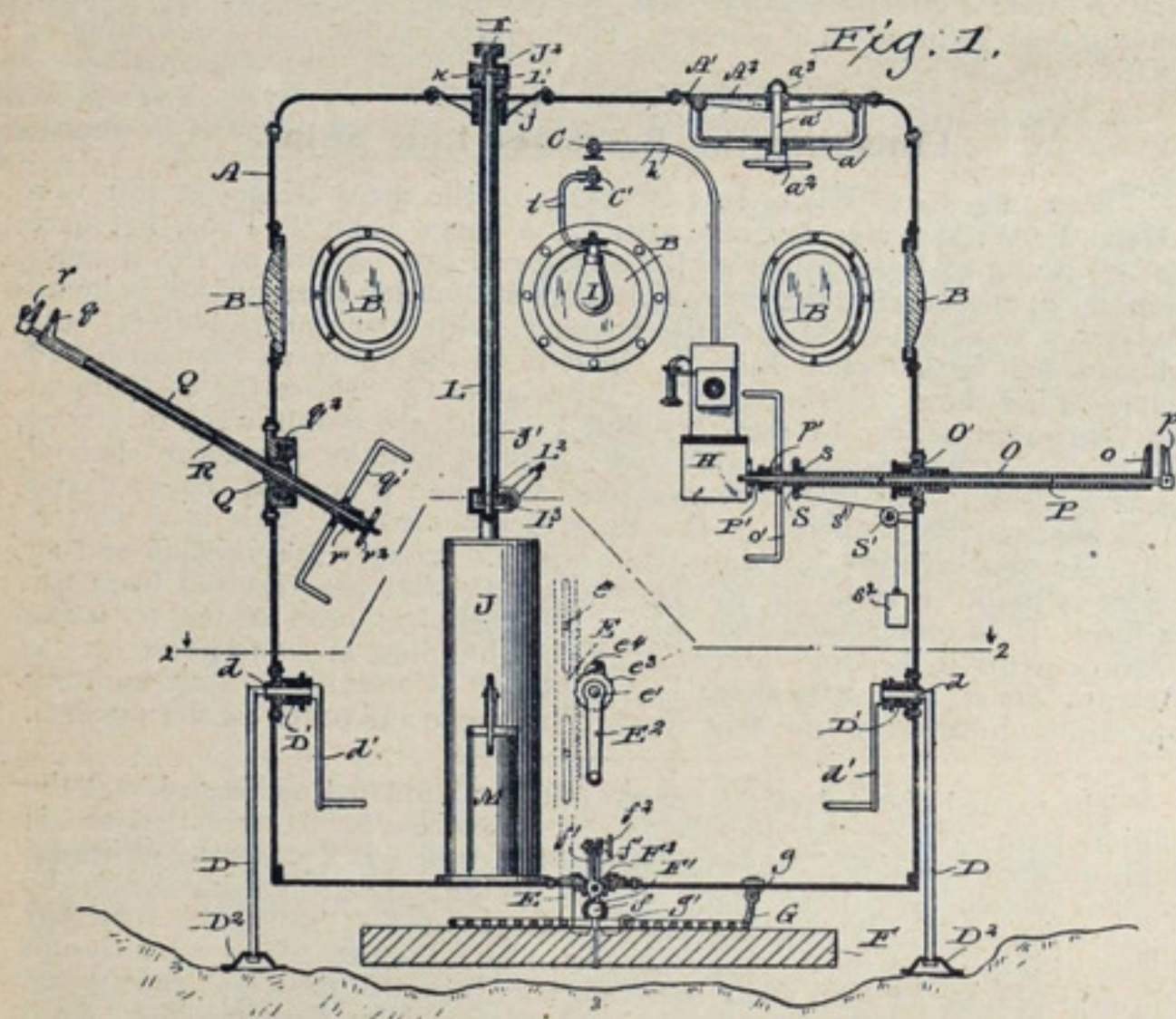


Capt. Frank Perew, who died in Buffalo a few days ago, possessed an acquaintance among lake marine men surpassed by few persons. He was born in Clayton, N. Y., in 1826, and as early as 1844 was before the mast on the schooner John Porter, Capt. William Cary. In 1845 and 1846 he was mate of a small schooner sailing from Cleveland, and in 1847 built the schooner Kosciuska of 8,000 bushels capacity, which was considered a large vessel in those days. He sailed this boat until the spring of 1850 and then became master of the steamer Belle, which together with the Fashion and Diamond, formed a line running from Buffalo to Cleveland, stops being made at all ports along the south shore. In 1852

he built the steamer Nile, and the year following purchased the Indiana, which he sailed for two years. He then retired from service on the lakes, devoting his entire time to vessel interests, which he gradually acquired. In 1856 he purchased the barge Oliver, and a year later secured the steamer Bradbury. This was followed in 1861 by his construction of the bark Mary E. Perew, and the next year he built the large tug William G. Fargo, for towing vessels from Lake Erie to Lake Huron. During the civil war this vessel was taken to New York via the St. Lawrence and utilized as a dispatch boat by the government. Capt. Perew's vessel building operations continued as follows: Bark D. P. Dobbins in 1863, bark C. J. Wells in 1866, Joseph G. Masten in 1867, bark John M. Hutchinson in 1875, steamer John B. Lyon in 1881, and steamer A. P. Wright in 1888. Six years ago he disposed of all his interests in the vessel business, after having been identified for half a century with lake shipping.

Diving Apparatus Used on the Pewabic.

The Review is enabled to present herewith a drawing of the diving bell invented by Capt. George W. Smith and manufactured at the works of Gardiner, Campbell & Sons at Milwaukee for the American Salvage & Wrecking Co., also of that city. This is the apparatus used in an effort to secure the copper cargo of the steamer Pewabic, sunk in Lake Huron. Within the past two years four men have lost their lives trying to recover copper from this vessel at a depth of 100 feet, one of the two drowned this season being George Campbell, who was a member of the above mentioned firm of Campbell & Sons and who was instrumental in the construction of the bell. Capt. Smith has the greatest confidence in his invention, notwithstanding the disastrous results of trials thus far made with it, and has announced that, despite the reports that the work on the Pewabic has been abandoned for good, he will resume the attempt to



THE SMITH DIVING BELL.

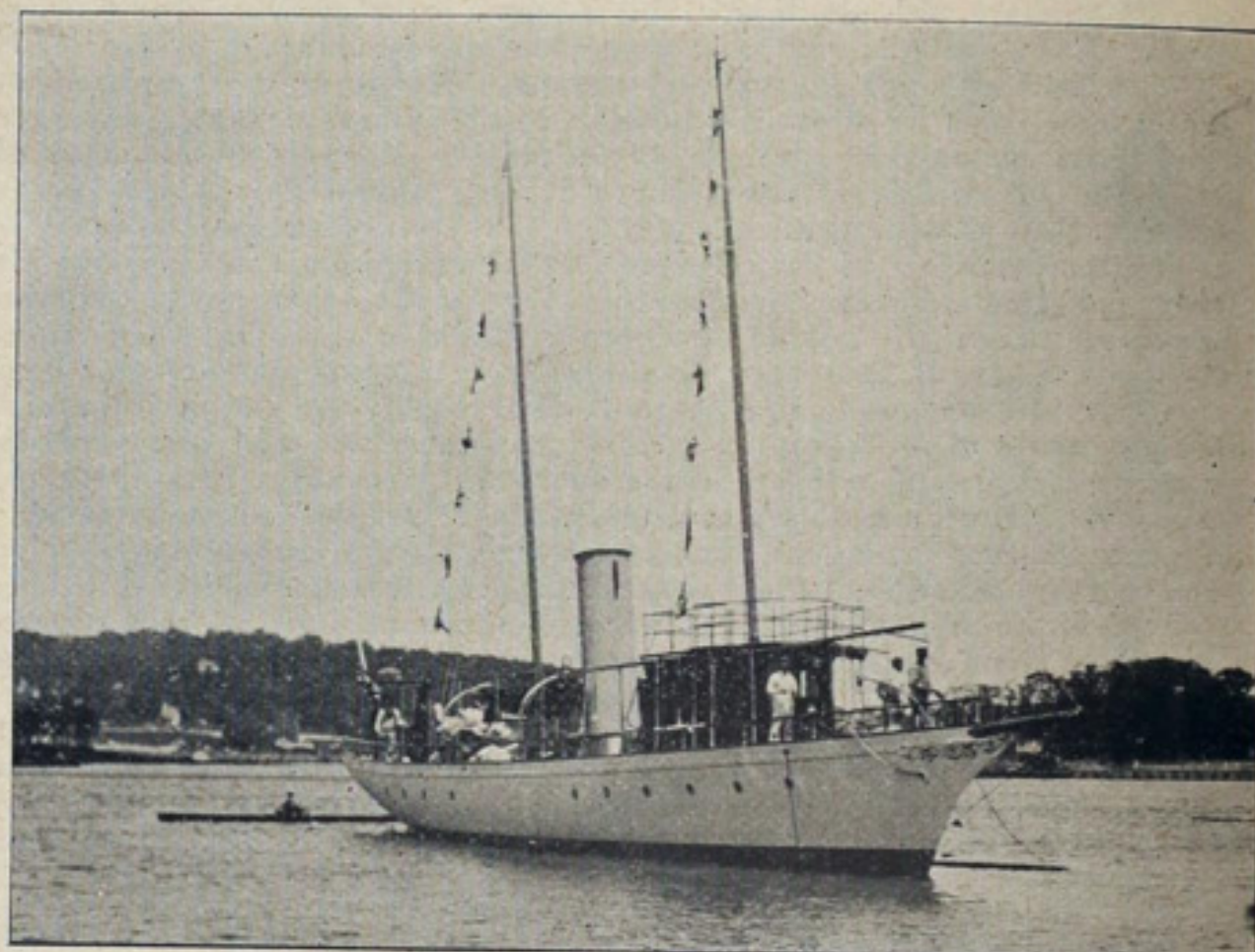
recover copper at an early date. He has repeatedly refused to give out a description of the apparatus. The description and illustration presented herewith are from patent office records.

The shell or bell is cylindrical in form, in order to enable it to withstand heavy external pressure. A manhole is provided in the top and bull's-eyes are placed in the sides. Air induction and deduction pipes are, of course, provided, and affixed to the sides of the shell are several pendulous legs, which may be operated by cranks to move it along the ground when at the bottom of the lake. As will be seen from the drawing, the bell is provided with electrical signalling devices, including a tele-

phone and an incandescent lamp. A cylinder and pump will also be noticed, outlined. They are utilized for the operation of a crane designed to carry any desired tools for grappling or hoisting purposes. The bell is also provided at suitable points with stuffing boxes or glands, through which are passed sliding arms, provided upon their outer ends with suitable jaws, adapted to grasp and manipulate any desired tools for handling articles upon the outside of the shell. An arm with these jaws may be extended or retracted or rotated to any desired position by the occupant of the shell, by means of the attached handle. In order to counterbalance the pressure of water upon the outer ends of the arms, a collar is loosely secured upon the outside of the arm, a rope attached and passed over a pulley, and a counterpoise weight affixed to the end. It must be understood that the operations are facilitated by the fact that the shell may be rotated about a ball and socket connection. The sinking of the bell is accomplished by means of a weight attached to the bottom, and when the occupants of the shell desire to come to the surface they may cause the apparatus to float by disconnecting it from the weight. The arms above described are designed for the grasping of any grappling or hoisting tools that may be lowered into the water, and for attaching them to articles to be raised, or for lifting small articles and depositing them in a net or other receiver that may be lowered. Heavier objects may be handled by the crane, to which any desired lifting or grappling tool may be suspended.

The Steam Yacht Margaret.

Few steam yachts constructed in this country have constituted a more complete embodiment of the latest improvements and most modern methods of yacht construction than the Margaret, recently completed by the Gas Engine & Power Co. and Charles L. Seabury & Co., Consolidated, of Morris Heights, N. Y., and a picture of which is herewith presented. The yacht, which was built for Mr. John H. Rutherford of New York city, is 102 feet 11 inches over all, 84 feet on the water line, 15 feet beam, 8 feet



A TRIM STEEL STEAM YACHT.

4 inches in depth, and 4 feet 6 inches draft. The interior arrangement, which is on a new plan, provides for the comfort of the crew as well as the passengers. The saloon is finished in white enamel with gold trimmings, the staterooms in bird's-eye maple, and deck house and dining room in mahogany. The Margaret is equipped with a Seabury water tube boiler and triple expansion engine of 300 horse power. On her trial trip the yacht developed a speed of over 16 miles per hour, and was declared entirely satisfactory by her owner. The Gas Engine & Power Co. and Seabury Co. had a former contract from Mr. Rutherford, for whom they, in 1895, built a 75-foot twin-screw yacht, also called the Margaret. The vessel just completed will go into commission within a few days.

Enlargement of a Baltimore Ship Yard.

The rush of work that has prevailed for some time past at the ship building yard of the R. M. Spedden Co. at Baltimore, Md., has justified a considerable number of improvements which are now under way, and which will be made more elaborate, in anticipation of the activity in ship building that is expected to follow the close of the war. The Spedden company has acquired the old Rossiter ship yard on Boston street, and a transformation is already in progress there. A three-story building 60 by 150 feet is under roof. The first floor will be utilized for an equipment of the latest improved machinery, including a large traveling crane. The second floor will be devoted to a machine shop and pattern department, and the third floor to a mold loft. A new pier is to be constructed and railway switches will be extended to every part of the yard. The steamer Vidette is now nearing completion at the Spedden yards. This firm also built the revenue cutter Guthrie, now included in the auxiliary fleet of the navy. Another vessel just completed at the yard is the powerful seagoing tug Isabella T. Dempsey, constructed for a Philadelphia firm.

There would seem to be no doubt that the new law abolishing the customs duties upon ships built abroad and imported into Russia will speedily have the desired effect. The best exemplification of this would seem to be found in the fact that the minister of finance has, up to the present time, received no less than eleven applications for authorization to establish large shipping companies.

Brown Hoisting Machinery for Foreign Markets,

The old adage about going away from home for news received a remarkable exemplification in a paper on "Brown Hoisting and Conveying Machines," read before a special meeting of the Dusseldorf branch of the Verein Deutsche Eisenhüttenleute a short time ago by Mr. Axel Sahlin. The author is a consulting engineer, who has made a study of the Brown machinery from the practical as well as the theoretical standpoint, and who has been instrumental in securing for the Cleveland firm some of its foreign orders. In his paper Mr. Sahlin stated that at the opening of the present year there were in operation in the iron ore traffic of America 320 Brown unloading machines, having a daily capacity of 110,000 tons. Five coal handling plants had a capacity of 20,000 tons per day, of ten hours. Only within the past year has the Brown machinery been seeking a market in Europe, yet already three bridge tramways have been placed at the Krupp works at Rheinhausen; two with the Krainische Industri Gesellschaft in Trieste; two are in operation at the new works of La Societe Providence, Mariopol, Russia; two other bridges have just arrived in South Russia, and within a few weeks orders for eight additional bridges have been received from other European points. The Brown company is also figuring upon the equipment for several plants upon which estimates have been requested by firms in England, Germany, France and Belgium. Mr. Sahlin paid quite a tribute to Mr. Alexander Brown, when, in speaking of the machinery, he said: "The product, one may say, of the brains, ingenuity and untiring perseverance of one man, Mr. Alexander E. Brown, general manager of the company which bears his name, this machinery of unique type and unparalleled velocities and capacity, is a development of the last fifteen years. It now handles more raw material in the United States than all other types of conveying and hoisting machinery together."

Improved Ore Handling Equipment at Lorain.

Among the improvements recently undertaken at the Lorain Steel Co.'s plant at Lorain, Ohio, none will be more extensive than the ore handling equipment. By reason of the fact that the land of the Lorain Steel Co. is fully 48 feet above Black river, very little crib work will be necessary to provide satisfactory dock facilities. The dock space will

Cleveland, against inspection of sailing vessels and the licensing of masters of such vessels, although I can well understand their opposition to the entirely unexpected amendment which requires the licensing of second and third mates. The vessel owners here are not, as a rule, interested in sailing vessels. Personally, some of them think that the inspection of hulls of sailing vessels and the licensing of the masters and first mates are wholesome provisions in the interest of navigation, and that the Lake Carriers' Association can hardly afford to place itself on record in congress as opposed to them. There seems to be no reason why the government should permit an unseaworthy sailing vessel to take a crew out any more than a steamer, or why it should permit a farmer to be a master of a sailing vessel and require a trained man on a steamboat. I think most lake vessel owners will be found outspoken in favor of the measure as originally framed, not only on the ground that it is a reasonable provision for the safety of the crew of a sailing vessel, but also on the ground that the owners of steamers are interested in having sailing vessels under the charge of competent men. Incompetency on a sailing vessel may often result in collision with steamers, and it follows therefore that the owners of steam vessels are interested in such a measure, as well as the owners of sail vessels."

Armor Plate Plant at Newport News.

Newport News, Va., July 19.—According to the best information obtainable there would seem to be a strong possibility of the establishment of an armor plant in connection with the works of the Newport News Ship Building & Dry Dock Co. The circulation of this report closely followed a visit of inspection made to Newport News last week by Mr. Collis P. Huntington the principal stockholder in the company, President C. B. Orcutt, and others prominently identified with the institution. Mr. Huntington was asked regarding the authenticity of the report that the Newport News company was carrying on negotiations with Sir William Armstrong, the London gun manufacturer, relative to the establishment of an armor plate and ordinance factory in connection with the ship building yard. His reply was an intimation that some overtures looking to such a project had been made but had fallen through. He is also reported to have said: "I am not so particular as to the gun plant, but my present idea concerns the armor plant. We hope soon to have on this water front

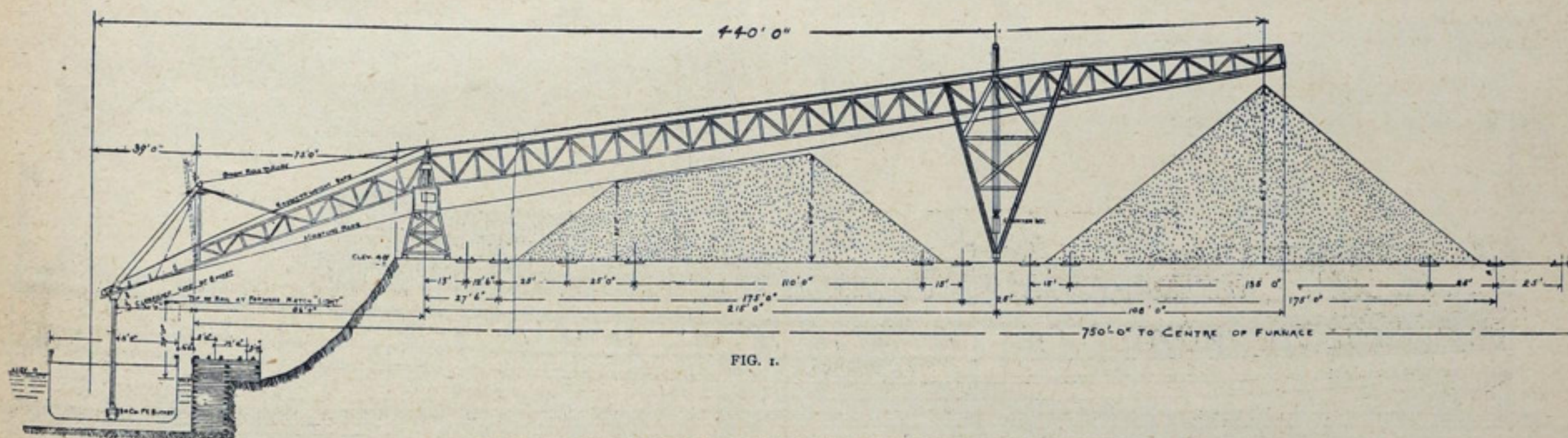


FIG. 1.
ORE UNLOADING EQUIPMENT ON THE DOCKS OF THE LORAIN STEEL CO.

aggregate 900 feet, enabling the unloading of two of the largest lake steamers simultaneously. That part of the Lorain plant in which vessel men are interested will be otherwise looked after by the expenditure of an appropriation of \$75,000 by the city of Lorain for dredging to a depth of 20 feet from the mouth of Black river to the company's docks and by widening the channel to 450 feet at a point above the docks, in order that the longest boats may turn. The dock will be equipped with eight hoisting and conveying machines of the latest type, the distance from the center of the hatches of a boat unloading to the end of the hoisting bridge being 440 feet. The level of the ore yard is 48 feet above the datum, which is 1 foot above deep water level. The overhang of the hoisting bridge on the water side is 126 feet from the center of the pier at the top of the bluff. The storage room is ample for all the ore that can be used between Dec. 1 and the opening of navigation, and the track system planned for the ore yards is designed to secure the rapid delivery of ore at the bins. In the navigation season ore for the current consumption of the furnaces will be loaded direct into cars on the tracks nearest the edge of the bluff. The ore bins which stretch out for 620 feet between the ore yard and the furnaces are a unique feature. The illustration of the dock equipment presented herewith is from the Iron Trade Review.

Bill Licensing Mates Laid Over.

Inasmuch as congress adjourned without taking any action on the bill relating to the inspection of hulls of sailing vessels and the licensing of masters and mates, reference to which was made in the Review last week, the whole matter will have to go over to the next session. A considerable percentage of vessel owners, probably a majority, seem, from all that can be gathered, to be in favor of the provisions of the bill so far as they refer to the inspection of hulls of sailing vessels and the licensing of masters and chief mates, and the Lake Carriers' Association has on at least one occasion endorsed such a measure. The stumbling block seems to have been found in the amendment which provides for the licensing of second and third mates, which was sprung by surprise and certainly has never had any endorsement from the association. The fact, however, that the matter has gone over for another session will give ample opportunity for a determination of the exact status of vessel owners on the question.

In speaking of the matter a few days ago a Buffalo line manager said: "I am rather surprised at the position taken by some vessel owners in

above the ship yard one of the largest industries in the country. Only the Bethlehem and Carnegie companies are now making armor plate." He explained this remark by the assertion that both American and English capitalists are interested in the proposed project. Mr. Huntington is quite confident that the contract for the two large steamers for the Pacific Mail company, which have been talked of for some time past, will be placed with the Newport News company, but he says he has as yet no definite idea as to when this contract will be let.

The Newport News company is also making arrangements to undertake a number of improvements. Two new buildings will be erected at once, a coppersmith shop and a beam shed. The former will be 60 by 175 feet, while the dimensions of the latter will be 80 by 200 feet. Both buildings will be equipped with the latest improved machinery. An order has also been placed for a new traveling crane, to be used in carrying material for the three Morgan liners, the contract for which was mentioned in the Review last week. The crane will be operated by electricity.

Work will be commenced within a few days on the magnificent \$1,000,000 dry dock designed by General Manager W. A. Post and destined to be the largest dry dock in the world. The basin will be 800 feet long, with a breadth of 80 feet at the bottom and 148 feet at the top. The depth will be 41 feet 8 inches from the top of the sill, giving 34 1/4 feet of water at low tide. The keel blocks will extend 5 feet above the bottom, enabling a vessel drawing 29 1/4 feet of water to enter the dock. The entrance to the dock will be 106 feet at the top and 80 feet wide at the bottom, with granite and concrete casements. The bottom will be of stone and concrete on a row of piles bracing the entrance at each side. There will be a line of piles, six in width, down the center of the dock, on which the keel blocks will rest, while on either side will be a row of four piles as a foundation for the docking keel blocks. Piles will extend from each side of the dock for a distance of 45 feet and will be connected with the sides of the basin, with cross braces for the purpose of strengthening it. The sides of the dock will be cone-shaped concrete walls with granite facings. At the bottom there will also be concrete with granite facing, laid upon rows of piles with connecting cross stringers of huge timbers in both directions. At least six months will be required for the excavation of the basin, and it is unlikely that the dock will be completed under a year. It is now settled that the battleship Illinois, under construction at the Newport News yard, will be launched about the middle of September, and thousands of people from Chicago and other Illinois cities are expected.

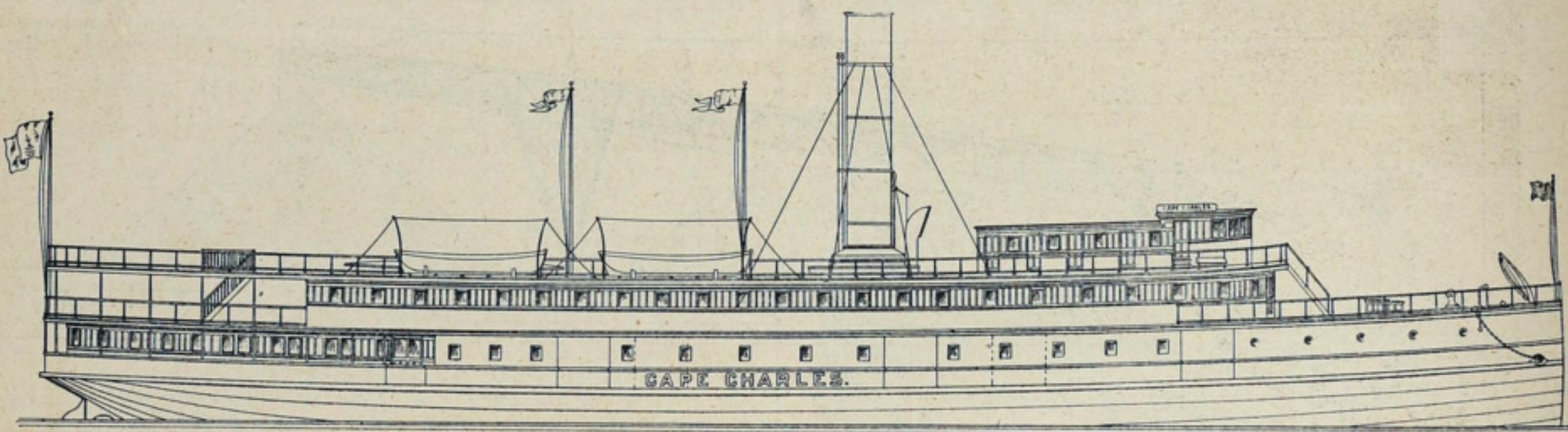
Artificial Draft in the Finest Ships of the World.

It would seem that the attention directed to artificial draft, through the application of Howden hot draft to a very large number of lake steamers during the past two years by the Dry Dock Engine Works of Detroit, will result in a general movement during the coming fall and winter toward the adoption of means for a reduction in operating expenses on more vessels of the medium class in the lake fleet. Just now the Detroit company is making arrangements to undertake the application of this draft system to vessels on the Atlantic coast. The policy of the leading steamship lines of the world is such that there is no longer any question in the minds of ship owners regarding the advantages of artificial draft, especially when applied to vessels like those built on the lakes a few years ago, when builders of engines and boilers were not called upon to give the attention to fuel consumption that is now required, as a result of competition with larger ships and a marked reduction in freight rates.

One of the most notable instances of the use of Howden hot draft of late is contained in a description of the latest big Atlantic liner to be built by the Vulcan company of Stettin for the Hamburg-American line. The Hamburg-American company's order calls for a vessel that is to excel in speed the North German Lloyd company's Kaiser Wilhelm der Grosse and Kaiser Friedrich. This means, also, that the new vessel will be very much faster than the Oceanic of 704 feet length, building for the White Star line at Belfast, as the White Star ship is not to develop a speed of more than 21 knots in regular service. The trial trip speed guaranteed for the new Hamburg-American steamer is $23\frac{1}{2}$ knots on the measured mile and 23 knots on the Atlantic. She is to be 690 feet over all, and to have engines for twin screws that will develop 36,000 indicated horse power. There will be twelve double-ended and two single-ended boilers, all worked under the Howden system of draft.

Fast Atlantic Coast Steamer.

Speed will be a conspicuous feature of the new steamer Cape Charles, launched a few days ago at the Roach ship yard, Chester, Pa. The vessel is building for the New York, Philadelphia & Norfolk Railroad Co. and will run between Cape Charles city, Va., the terminus of the line, and Norfolk. The sail between these points is about 36 miles, a stop being made at Old Point Comfort, en route. The Cape Charles will be the



ATLANTIC COAST STEAMER, CAPE CHARLES.

largest and fastest steamer on the line. She is 133 feet in length, 41 feet beam, 15 feet depth and $9\frac{1}{2}$ feet draught. She is designed to carry 250 passengers and 250 tons of baggage, and the light draught is necessary to enable the steamer to reach the wharves at Cape Charles city. The saloons are commodious and handsomely furnished. The engines with which the steamer is equipped have cylinders of 19, 32 and 50 inches in diameter with 28-inch stroke. Steam will be furnished by two boilers, 13 feet in diameter, with a working steam pressure of 170 pounds. The vessel is guaranteed to make 18 knots. The Cape Charles is of greater length and beam than either the New York or Old Point Comfort, the present steamers on the line. The convenience of passengers has been made a consideration in the arrangement of the vessel. The main saloon extends the whole length of the joiner deck, and above this will be a promenade on the hurricane deck. The Roach people take a particular satisfaction in this boat, inasmuch as the contract stipulated her completion in the short period of seven months, and it now seems practically certain that this will be accomplished. The engines and boilers are in place, the electric light plant completed, and the work of putting on the finishing touches is well under way, so that there would seem to be little doubt that the steamer will be ready to go into commission by August 1. Government officials some time ago inspected the vessel and desired to purchase her for transport service, but the line was so greatly in need of the steamer that it was decided not to sell.

Frederick Metcalf, who was with the American Ship Windlass Co., has purchased the interest of G. C. Barnes in the Chase Machine Co., Cleveland, and is now secretary and treasurer of that company. The Chase Machine Co. holds a high place in the opinion of vessel men and Mr. Metcalf will undoubtedly prove an active addition to the management. He has been in Cleveland only a short time, but has already made a number of friends on account of the business-like way in which he has taken hold of matters pertaining to reorganization of the company.

A good thing bears repetition. The Nickel Plate road will run another of its popular excursions to Chautauqua, N. Y., on July 29. Low rates, thirty-day limits, and first-class service make a great drawing card. Ask agents for time of trains and rates.

126, July 28

Navigation Rules for Middle Neebish Channel.

Operations for the deepening of Middle Neebish channel, St. Mary's river, and the rules just established to govern navigation during the continuance of the work, are the subject of a self-explanatory letter from Col. G. J. Lydecker, United States engineer at Detroit. Col. Lydecker writes to the Review as follows:

"I enclose a copy of rules that have just been prescribed by the secretary of war for regulating navigation through the Middle Neebish channel, St. Mary's river. Most vessel men, but possibly not all, know that a part of this channel is an artificial cut through solid rock, and that the work of deepening it is now in progress. Operations have now reached such a stage that no more than half the original width (300 feet) of channel is available for navigation; this reduces the navigable width to 150 feet, and, as the channel has steep, rocky sides and a very swift current, vessels cannot now meet there without grave danger of collision, which would be likely to result in sinking one or more of them; the result would be to close navigation to and from Lake Superior for an indefinite period to all but such light draft vessels as could use the old river channel. It has been found that the great majority of vessel masters will pay due heed to a single notice indicating what is required for safe navigation in cases like this, but there are quite a number of others who will pay no attention to anything but rules whose violation can be adequately punished. The local conditions are now so critical that the establishment of such rules has become imperative in order to reach these exceptional cases."

The rules and regulations referred to in the foregoing letter from Col. Lydecker are as follows:

"Under the provisions of section 4 of the act of congress approved August 17, 1894, the following rules and regulations are prescribed for navigating the 20-foot ship channel through the Middle Neebish, St. Mary's river, a public necessity requiring such action on account of work now in progress for deepening a critical section of said channel, viz, abreast of the north side dike, from a point about 1,500 feet above its lower or easterly end to a point about 1,150 feet below its upper or westerly end. The width of channel that will be available through this section, while the work is in progress, will not exceed 150 feet.

"Rule 1. Vessels bound in opposite directions shall not meet in the Middle Neebish channel anywhere abreast of the dike, and masters of

others in charge of vessels shall take every possible precaution to avoid so meeting.

"Rule 2. Down-bound vessels shall have the right of way in all cases, and up-bound vessels shall reduce speed or stop so as to remain in the wide channel-way below the dike while any down-bound craft is approaching or passing abreast of it. Waiting vessels shall take such position in the wide channel-way below as will leave the down-bound craft free to continue in prolongation of her straight course abreast of the dike.

"Rule 3. The United States engineer officer in charge will arrange for having the navigable channel abreast of the dike so buoyed and lighted as to best conform with the changing conditions that will attend the progress of the work in that locality, and the movements of all vessels must be so directed that they shall not pass outside of the limits indicated by such buoys and lights.

"Rule 4. The United States engineer in charge of the work and his local assistants will regulate the movements of all vessels in the vicinity, to such extent as may be necessary to insure compliance with these rules, and all orders or instructions given by them with that object in view must be promptly obeyed.

"The foregoing rules shall be of full force and effect immediately after their promulgation, and shall so continue until the work of deepening the channel becomes completed. The United States engineer in charge of the work will arrange to have the locality closely watched, and all willful violations of the rules duly reported for prosecution as provided by the act of congress hereinbefore referred to."

The advertisement of the International Anchor Co. of Cleveland, O., and Binghamton, N. Y., appears in another part of this issue. In soliciting this advertisement a representative of the Review asked the owner of patents on the anchor what he would like to have said in a short notice that would be printed in the first issue in which the advertisement appeared. "I will tell you what not to say," he answered. "Do not say that they are the best anchors ever made, or that they are better than anything ever thought of in the way of an anchor, but it may be said that fifty-four of them, weighing over 120 tons, have been sold, principally for new boats built on the lakes, within the past four months, and that is enough for anybody to say in their favor."

Receipts of grain at Buffalo last week aggregated 3,644,936 bushels.

Summary of Coal Situation from Buffalo.

Buffalo, July 20.—There is some sign of a revival of the shipments of hard coal by lake, though the main reason for the slow movement so far this season still exists in full force. There is a good demand for this coal east at prices fairly satisfactory to the shipper, while there is scarcely a western market that has not "got away" from the shipper completely. This is true in Buffalo and Toronto as well. About two years ago the anthracite shippers managed to stand together long enough to establish a good stiff price throughout the west, and then most of them sought to continue their hold on the trade by moderate shipments, but the usual mistake seems to have been made. Prices were high enough to give some member of the trade a chance to cut under it, and it was not long before the advantage gained was all lost. The price came tumbling down and some of the companies declined to go into a fight for first place. The Delaware & Hudson Co. dropped out first, and has not shipped a cargo since April. The Delaware, Lackawanna & Western, which ships about half the water coal from Buffalo, also stopped awhile, and the Lehigh, after taking a leading place for a time, is now doing very little. The Pennsylvania company, which started in first and got a big lead in April, is now holding back.

There are now indications that someone is preparing to take advantage of the situation and jump in for a grab after tonnage and a gathering in of western consignees. This appears to be looked for by the shippers. Meanwhile the condition of the western trade is as bad as it can be. With the Buffalo price down to about \$4, Chicago is selling for a mere 75 cents more, and Toronto is so completely demoralized that a shipper remarked the other day that he was not equal to making a price on coal to a To-

two steamers, each 65 feet long by 12 feet beam. One will be run on Rainy lake and the other on Wabigoon lake.

A 175-foot tug for the Scully Towing Co. of New York is on the stocks at the ship yard of John H. Dialogue & Son, Camden, N. J.

Arthur D. Story of Ipswich, Mass., is building a steamer to be known as the Lexington and destined for the Massachusetts state patrol service.

The Bertram Engine Works Co. of Toronto has begun work on the sister ship of the Ontario, under construction for the Richelieu & Ontario Navigation Co. The new vessel is to be ready to go into commission next year.

The tug Curtin, under construction for C. Gring of Camden, N. J., has been sent to Baltimore for her machinery. She is 90 feet long by 19½ feet beam and 8½ feet depth, and will be used for towing between North Carolina and Philadelphia via the inland route.

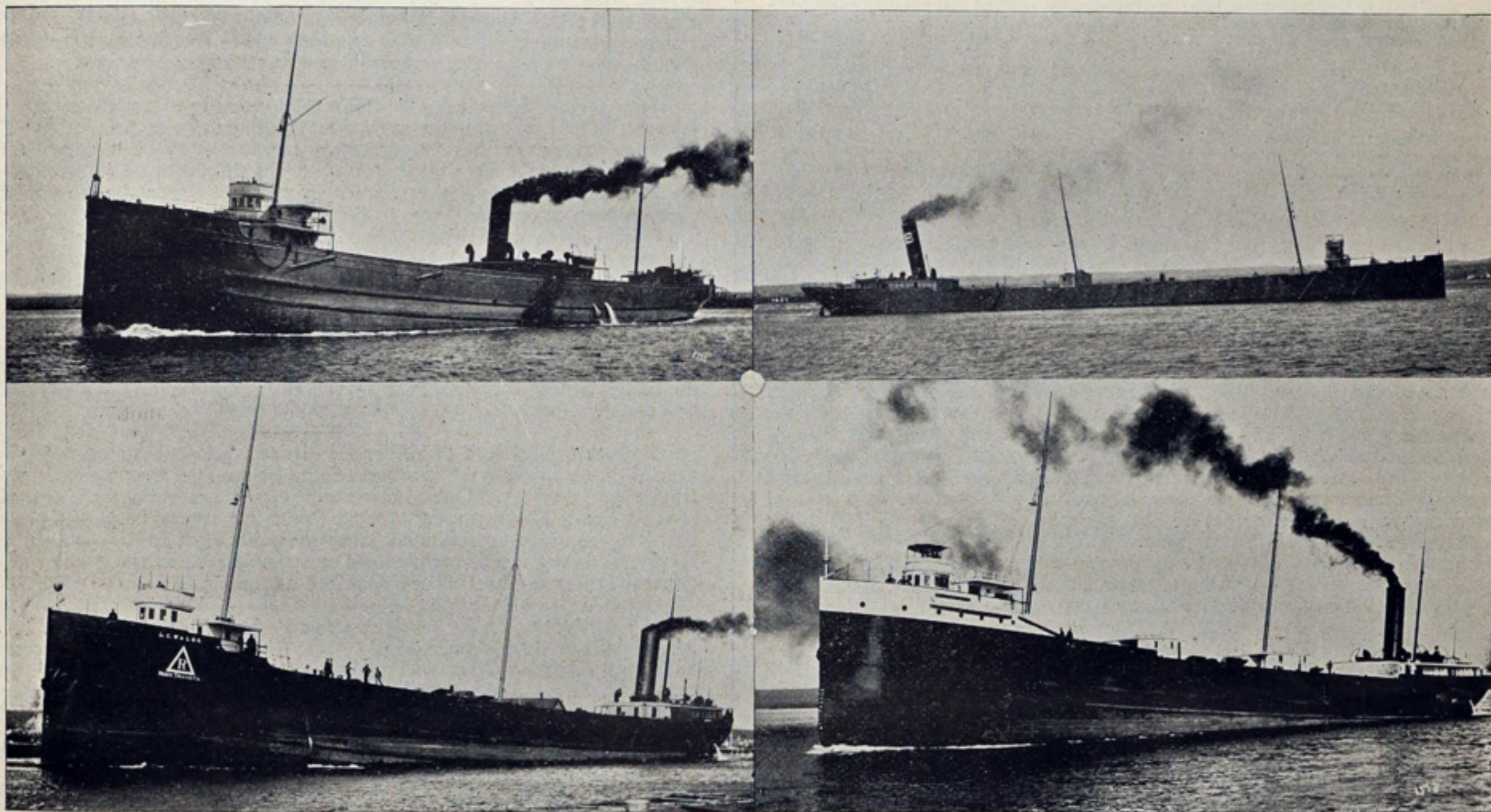
Around the Lakes.

Gladstone has been designated a subport of entry in the Superior customs collection district.

The machinery of the Anchor line steamer Delaware was damaged to the extent of \$12,000 to \$15,000 by a fire in the engine room while she was lying at Erie, Tuesday.

Reports are to the effect that the Duluth, South Shore and Atlantic Railway Co. may start to build a new ore dock at Marquette before the end of the season. So far the shipments of this road are far in excess of last year.

The Chicago River Improvement Association will confer with mem-



(From 1898 Blue Book of American Shipping.)

MERIDA—D. WHITNEY, JR., DETROIT, MICH.
L. C. WALDO—ROBY TRANS. CO., DETROIT, MICH.

Group of Iron Ore Carrying Steamers.

GEO. STEPHENSON—BESSEMER STEAMSHIP CO., CLEVELAND, O.
PENOBSCOT—C. A. EDDY, W. BAY CITY, MICH.

ronto buyer who came over here. The great bulk of hard coal distributed from Toronto goes over from Oswego in boats owned or chartered by the New York, Ontario & Western company. Shipments of coal to the upper lakes through the Welland canal are this season about on a par with former seasons, which means that the amount is quite moderate. It all comes from Oswego. Buffalo finds a much more active competitor in Scott & Co. at Erie, who appear to be well up to former shipments.

The soft coal movement from here has lagged of late on account of the slow work on the new car dump on the Rochester & Pittsburg dock, which company is our only soft coal shipper. This apparatus was to be done in May, but is not ready yet, though it is expected to be in use this week. Vessels have of late refused to wait for wheel-loading of soft coal at 20 cents a ton freight, so that the soft coal movement is at a standstill. There is a large amount ready to go forward as soon as the car dump works.

New Contracts and Launches.

Percy & Small, Bath, Me., have begun work on a large schooner of which they will act as managing owners.

B. Rowe, for six years with the Camden Water Wheel Works, is building a small steamer for his own use at Camden, N. Y.

The Marietta Manufacturing Co., Marietta, O., is building a large engine for a vessel under construction at St. Louis.

The Schultz Bridge Co., McKee's Rocks, Pa., has launched a steel transfer barge for the St. Louis Transportation Co. of St. Louis, Mo.

The Pioneer Steam Navigation Co., Wabigoon, Ontario, is building

bers of the drainage board, city officials and Major Marshall, United States engineer, relative to the disbursement of the \$400,000 appropriation made by congress recently for improvements at the port of Chicago.

Troy is the name selected for the package freight steamer building at Wyandotte for the lake line of the New York Central Ry. The Detroit Dry Dock Co. has not been hampered by a close contract in the construction of this vessel, and it is expected they will make her the finest package freighter on the lakes.

In a notice to mariners just issued by the hydrographic office, John Eckley, keeper of the Raspberry island light, reports that the spot where the steamer Marina stranded on sunken rocks near to and opposite the light has been marked by a buoy on which is placed a red flag. The buoy is moored in 19 feet of water. There is only 6 feet of water over the iron ore jettisoned by the Marina.

At the longshoremen's convention, which closed at Cheboygan a few days ago, new officers were elected as follows: President, Daniel J. Keefe, Chicago; first vice-president, Frank Foster, Escanaba; second vice-president, John Walsh, Cleveland; third vice-president, W. Murnian, Duluth; secretary-treasurer, Henry C. Barter, Detroit. H. C. Barter, Detroit, and C. Coughlin, Buffalo, were elected delegates to the Lake Carriers' convention, to be held in Detroit in January, 1899.

Mr. R. R. Rhoades of Cleveland, owner of the steamers Minneapolis and St. Paul, and the owner of other vessels of a size to permit of their passage through the new St. Lawrence canal locks, are very much interested in the progress of work on the Canadian canals, due to anxiety to have their boats begin trading to Montreal, but all talk of a steamship line from the lakes to Liverpool, as outlined in a newspaper story this week, is as yet a vision of unstable character.



DEVOTED TO LAKE MARINE AND KINDRED INTERESTS.

Published every Thursday at No. 409 Perry-Payne building, Cleveland, Ohio,
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binders sent, post paid, \$1.00. Advertising rates on application.

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The books of the United States treasury department on June 30, 1897, contained the names of 3,250 vessels, of 1,410,102.60 gross tons register in the lake trade. The number of steam vessels of 1,000 gross tons, and over that amount, on the lakes on June 30, 1897, was 399, and their aggregate gross tonnage 769,366.68; the number of vessels of this class owned in all other parts of the country on the same date was 314, and their tonnage 685,709.07, so that more than half of the best steamships in all the United States are owned on the lakes. The classification of the entire lake fleet on June 30, 1897, was as follows.

	Number.	Gross Tonnage.
Steam vessels	1,775	377,235.45
Sailing vessels and barges.....	1,094	894,888.87
Canal boats	361	37,978.28
Total	3,230	1,410,102.60

The gross registered tonnage of the vessels built on the lakes during the past five years, according to the reports of the United States commissioners of navigation, is as follows:

Year ending June 30, 1893.....	175	99,271.24
" " " 1894.....	106	41,984.61
" " " 1895.....	93	36,352.70
" " " 1896.....	117	108,782.33
" " " 1897.....	120	116,936.98
Total	611	403,327.91

ST. MARY'S FALLS AND SUZ CANAL TRAFFIC. (From Official Reports of Canal Officers.)

	St. Mary's Falls Canals.			Suez Canal.		
	1897	1896	1895	1897	1896	1895
Number of vessel passages.....	17,171	18,615	17,956	2,986	3,409	3,434
Tonnage, net registered.....	17,619,933	17,249,418	16,806,781	7,899,374	8,560,284	8,448,383
Days of navigation.....	234	232	231	365	365	365

Ship builders on the Clyde have just broken two records. June returns show that the output of new tonnage was not only the greatest of any month of June in the history of the district, but the aggregate for the six months surpasses that for any corresponding period of time previously. The tonnage launched last month—47,862 tons—found its nearest approach in June, 1883, when the Clyde turned out 43,458 tons. The six months' record just made was 207,538 tons, as against 198,729 tons in a similar space of time in 1883, the next highest showing. The new tonnage under construction in Clyde yards aggregates 500,000 tons. A fairly accurate estimate gives 250,000 tons as being now in course of construction on the Tyne, while the Wear has in hand some 200,000 tons, Belfast 160,000, the Hartlepoons 100,000, Middlesborough 90,000, and Barrow 50,000, or, including the Royal dock yards, the United Kingdom has at present in course of construction little, if anything, short of 1,650,000 tons of new hulls. From the returns compiled by Lloyd's Register of Shipping, it appears that, excluding warships, there were 580 vessels of 1,322,068 tons gross under construction in the United Kingdom at the close of the quarter ended June 30, 1898.

In discussing prevailing conditions and the outlook for the immediate future, the Iron Age has the following to say: "The first step toward a more satisfactory condition of affairs in the pig iron trade has been taken through the lessening of the rate of production, which has been progressing at such an unprecedented rate during the whole of this year. From the maximum of weekly coke iron production on March 1, of 229,000 tons per week, the output has receded to 210,600 tons on July 1, by far the greater part of the decline taking place during May and June. At last, too, stocks in the yards of merchant furnaces are being attacked, so that consumption is coping with the supply. In the foundry trade the principal producers have sold pretty far ahead, at low prices, so that statistically a firmer tone seems justified. In the business community generally the conviction seems to be growing that we have an active period before us, and there are high authorities in the iron trade who are shaping their policy in accordance with the conviction that more remunerative prices are not far distant."

Internal Revenue Collector McClain of Philadelphia has received an important ruling from Commissioner of Internal Revenue Scott relating to the paragraph entitled "Insurance (inland, fire, marine)," the ruling of the commissioner being that the tax on marine insurance is to be paid by "a stamp representing one-half of 1 per cent. on each dollar or fractional part thereof upon the amount of premium charged." The commissioner says that it appears to the satisfaction of the commissioner's office that from the nature of the marine insurance business it is only possible to ascertain the amount of premium charged under open policies from the books of the companies, and as they have filed a satisfactory bond the collector is authorized to accept the affixing of stamps to said books and their due cancellation as full compliance with the law. It is provided that the stamps must be affixed monthly, and the figures sworn to by the president and secretary or authorized attorneys or agent of the company.

An effrontery so sublime as to almost induce admiration is evidently possessed by Capt. Murphy of the ship Shenandoah, which recently arrived at Baltimore from Liverpool. His plaint is that in April, while on the high seas, bound from San Francisco to Liverpool, war was declared between the United States and Spain, and he was compelled to hire a tug

to tow the vessel nearly 700 miles to the latter port, fearing that he would fall into the hands of the Spaniards if he trusted to the wind. For this service he was obliged to pay \$1,500, and now he would like to have the United States government reimburse him.

Upon the recommendation of Capt. Ferguson of the steamship Etruria the Cunard Steamship Co. has decided to equip that vessel, for experimental purposes, with the apparatus invented by an Austrian sailor for lowering boats, and which is said to require the services of but one person for its operation. An important innovation in the new apparatus is the location of the davits. These, instead of being so placed as to be rendered useless in case of a heavy list, are located at such an angle as to enable the sailor manipulating the machinery to lower the boat into the water, even if the ship should be on her beam ends.

The Holland-American line has ordered two fine new twin-screw steamships of 12,000 tons each, for their transatlantic service. The new vessels will be 550 feet long, 62 feet beam and 44 feet deep, with a speed of 18 knots. They are both to be ready by 1900. One will be built by Harland & Wolff, at Belfast, Ireland, and the other by Blohm & Voss, at Hamburg, Germany. The company has already two similar twin-screw steamers building, one of which, the Statendam, is due to sail for New York August 25, while the other, the Ryndam, will be finished next year.

French ship builders a few days ago launched two warships constructed for foreign nations. One is the Maresciallo Deodoro, an iron-clad of 3,162 tons, building for Brazil and under contract for delivery in August. She is 273 feet long, 50 feet beam and 10 feet draught. She will have a speed of 16 knots and is designed for coast defense. The second vessel is the Sao Gabriel, a cruiser of 1,800 tons, ordered by the Portuguese government. She is 250 feet long by 35 feet beam, has engines of 2,650 horse power, and is expected to make 15 knots on trial.

In a private letter from London to the editor of the Army and Navy Journal, Mr. H. W. Wilson, author of "Ironclads in Action," says: "British opinion, except about 1 per cent. of ignorant fools, has been steadily on your side. If I were an American I should protest against the building of more monitors. You want a fleet, and we want to see you with a fleet built to attack, and not to defend. Circumstances in the very near future will drive the United States and Great Britain together."

English ship builders, in explanation of the present extreme activity of ship building interests and the advance of from 10 to 15 per cent. in prices during the past twelve months, attribute it to the conclusion of the recent engineering strike, the opening up of China, the Spanish-American war, the repeal of duties on shipping by Russia, the probable granting of the half premium on navigation by the French government, and the heavy movement of cereals from one part of the world to another.

Suggestions galore of all sorts and descriptions relative to the operation of ocean liners have, as might have been expected, resulted from the Bourgogne disaster. One of these suggests the establishment of a sailors' civil service. The argument is made that a law should be passed providing that all passenger vessels shall carry only crews that have passed a civil service examination and who hold testimonials as to good character and general fitness for the service required of them.

All transports in the service of the United States are known by numbers. All the vessels purchased by the government for this service have had their names obliterated and numbers placed on both bows with the letters U. S. A., under which is the title, Q. M. Dep't. The stacks have black tops, with red, white and blue bands, and lower part is of cream color. The late prize steamer Panama is No. 1, there being thirty in all.

The frequently emphasized provision, that the British admiralty shall always have the power to step in and take charge of any warship building at a British ship yard, does not appear to always be a good thing from a ship builder's point of view. Indeed, it is stated that it has just cost a prominent English firm a large order that might otherwise have been received, and from a nation at present friendly to Great Britain, too.

Reports just issued by the French government show that the mean speed attained last year by the French transatlantic liners was 16.71 knots. The White Star liners are credited with a mean speed of 17.24 knots, the Hamburg-American liners with 18.72 knots, the American line with 18.76 knots, and the Cunarders with a mean of 19.25 knots.

The battleship Wisconsin, the only one of the five building for the United States government that is not in the water, will be launched at the yard of the Union Iron Works at San Francisco at 9:30 o'clock on the morning of Nov. 26. Gov. Scofield of Wisconsin has appointed a committee to select some one to christen the vessel.

The prominence which has recently come to Commodore John Watson has recalled to many lake vesselmen a slight acquaintance with him when, from 1880 to 1883, he served as light-house inspector of the eleventh district, with headquarters at Detroit.

Annexation of the Hawaiian islands has added fifty-three vessels to the American merchant marine. The list includes twenty-four steamers, engaged principally in the inter-island trade; four ships, ten barks and seventeen schooners of various classes.

The total tonnage of seagoing vessels engaged in the foreign trade which entered the ports named in 1896 was as follows: New York, 6,911,782; London, 15,582,195; Liverpool, 10,883,024; Southampton, 2,998,254; Hamburg, 6,445,167.

The new dry dock at the Brooklyn navy yard will be ready for use within a month, and the largest battleships of the navy, as well as any of the Spanish cruisers which may be saved, can be docked there with ease.

Trial Trip of the Kasagi.

Another feather is added to the cap of the William Cramp & Sons Ship & Engine Building Co. as a result of the very successful trial of the Japanese cruiser Kasagi, over a 40-mile course off the Massachusetts coast last week. The Kasagi is the cruiser which the United States government made an unsuccessful attempt to purchase at the outbreak of the war, and the Cramp company finds a further cause for gratification in their achievement of completing the vessel full six months ahead of the contract time. A strong cross tide and other unfavorable circumstances made the conditions for the trial not of the most satisfactory nature, and yet the Kasagi developed a speed of 21.68 knots under natural draft and 22.76 knots under forced draft, the contract calling for 20.50 knots under natural draft. Engineer-in-Chief Edwin S. Cramp was naturally delighted with the constantly increasing good work done by the engines. The revolutions of the screws rose from 158 at the beginning of the run to 164 at the close. This was accomplished with an even pressure of steam and an air pressure of about 1½ inches in the fire rooms. After the regular trial the perfect condition of the machinery was attested by a series of progressive trials to get the speeds at 80, 125, 150 and 160 revolutions. On the run from Philadelphia to the regular course a speed trial under natural draft was made. On this occasion the speed of the cruiser under practically natural draft (fire rooms open with blowers giving ½ inch air pressure) was 21.65 knots. The completion of the vessel ahead of contract time is the first case of the kind on record. The Japanese officials aboard expressed themselves as perfectly satisfied with the cruiser, which will be sent to England to receive her armament.

A very complete coal test was made during the trial trip, although results are not yet obtainable, and at the conclusion of this a test was made to determine the manouvering ability of the cruiser. With full speed, thirteen revolutions per minute of the engines, complete circle to starboard, the time was four minutes, 15 seconds. With same conditions, but going to port, four minutes, sixteen seconds. The circle in each case was less than 300 yards. Full speed ahead, reversing and coming to complete stop, two minutes, twenty-five seconds, or in the vessel's own length. A remarkably close calculation is related of the mileage made by the ship on the home trip. The distance from Portsmouth to the Five Fathom light is exactly 446 miles. The trip was made some of the way in the fog, and the lights could not be seen. The ship had lost her log, which indicated the speed, and the distance was calculated by the revolutions of her engines. When the Five Fathom light was reached the calculated distance was only a mile and a half out of the way.

Quaint Fiction of a Detroit Man.

A well-known member of the Detroit club recently made a trip up the lakes on the steamer Globe as the guest of a Cleveland ore shipper, to whom he this week sent a letter of thanks, addressing his host as the secretary of the navy. The letter is as follows:

"Having completed my cruise, I beg leave to make an official report, and, in doing so, to extend to you my thanks for being assigned to so pleasant, if uneventful, a trip. We cleared port on Friday, July the first, and took a cruise west by north a half north, with frequent variations. In the Detroit river we overhauled one of the enemy's fleet carrying contraband of war, and I was in favor of sinking her, which would have been a simple matter. The captain, however, feared that such a course of action might cause foreign complications, inasmuch as we were in neutral waters. So we proceeded on our course, being saluted frequently by tugs, colliers and transport ships. In the Detroit river were anchored a number of war vessels, one, the Yantic, a full battleship, being the flagship, while another, the Fessenden, seemed to be engaged in blockade work. The range of this fleet being 100 yards, we had no difficulty in getting through. We subsequently learned that the crews of these vessels had all deserted to go to Cuba on a pleasure trip. In St. Mary's river we encountered many of the enemy's boats, one, a pig at that, having been run aground to prevent our going through. Some of our auxiliary fleet, however, cleared the channel for us, and we had the pleasure of seeing the aforesaid pig towed away in a disabled condition, leaking badly. In this river we had many narrow escapes from the gunboat patrol. Escaping from these patrol boats is accomplished not by running ahead at full speed but by checking down whenever one of them appears in sight. We finally made a terminal point on the evening of the fourth, after much severe suffering from the Arctic weather. Owing to some trouble in the quartermaster-general's department, we were delayed in port a day, but finally got our cargo and sailed under sealed orders. The rest of the trip was uneventful, save that we were delayed by colliding with two fog banks. We were obliged, on account of these fog storms, to cast anchor twice in St. Mary's river. The discipline of the men was perfect, the off-watch sleeping as coolly as at home. At the Sault we got more sealed orders, the contents of which were not divulged to me. I suppose, however, that by this time the Globe is coaling at sea from the collier George B. Raser. I deserted at Detroit by falling overboard into a small boat.

"I had expected to travel incognito as a watchman, but found I was treated with all the courtesy extended to admirals. The cook and captain bold, and the mate of the nancy brig, and the bosun tight, and the midshipmite, and the crew of the captain's gig, all did everything possible to make things pleasant. The mess was A1, and the boat was beautifully run. In fact, I saw some of the deckhands taking baths! This last made me think I was indulging in a happy dream. I only have one criticism to make. If you want to destroy the enemy's fleet you will have to replace Capt. Chapman. I could sink more of their vessels in one day, say in St. Mary's river, than he will sink in a thousand years."

The next session of the Lake Superior Mining Institute will be held at Ironwood, Mich., upon invitation of members on the Gogebic range. The sessions will begin on Tuesday, August 16. The principal mines on the range will be visited.

Marine men generally seem to feel a gratification in the appointment of Col. Peter C. Hains, corps of engineers of the U. S. A., to be a member of the Nicaragua canal commission.

A Good Word for Lake Ship Builders.

In connection with the smiles caused in marine circles last week by the appearance of a dispatch from Chicago intimating that business is so dull at lake ship yards that in several cases the firms controlling them contemplate a removal to the seacoast, it is interesting to note the constant improvement of opinion regarding the lake ship building industry among men identified with shipping interests on the coast. Business is not very active in lake ship yards just now, but there are still some ten or twelve steel vessels to leave the yards, and a large amount of repair work on hand in most places, and it will be time enough to talk of dullness in the fall, if orders for new ships are not then forthcoming. Contracts with the ship builders are usually placed in the fall, and not in mid-summer, when vessel owners are actively engaged in carrying out freighting contracts and are undetermined as to their policy for another season. The Chicago dispatch was probably prompted by a shortage of news items for the marine columns of the daily papers. It is possible, of course, that some of the lake builders may become interested in new plants on the coast, if ship building prospects improve after the war. In this connection the editorial comments of the Boston Herald (traditionally an advocate of free shipping) are interesting. The Herald says:

"Iron and steel ship building on the great lakes has been carried to a point that its annual output now exceeds the ship building on the entire seaboard of this country. These lake ship builders have shown an aptitude which their salt water business associates have not equalled, and, what is more, the ship builders at Chicago, Detroit, Buffalo and Cleveland have a command of cheap iron and steel and cheap coal, under conditions which make it possible for them to do work at prices below those demanded at our seaboard ship yards. The present difficulty is that the means of access from Lake Erie to the ocean are not sufficiently extensive to permit vessels of large tonnage to pass through the canal and down the St. Lawrence river. But the work of supplying these needed facilities is relatively no greater than the work undertaken by the citizens of Glasgow in so deepening the waterway of the Clyde river that vessels of the largest tonnage can be built and launched on its banks and sent sailing to their destinations in all parts of the world. It is more essential for the development of our ship building business that a waterway of sufficient depth and width to float vessels of the largest tonnage should be provided from the great lakes to the Atlantic than it is that the Nicaragua canal should be constructed. If, by arrangement with Canada, joint action could be taken, it would seem to be possible, at a relatively small expense, to so enlarge existing facilities as to make the great lakes a waterway accessible to the largest ocean steamers, or, in other words enable the ship builders of the lakes to construct ocean craft equal in size and capacity to any that are now afloat. It would be, obviously, better to act with Canada in this matter, for the reason that in this way the expense could be shared, and, besides, the waterways, natural and artificial, through her territory furnish, by long odds, the cheapest and best means of communication with the ocean. This is work which we can undertake, in conjunction with our Canadian neighbors, with a great measure of advantage to all concerned."

Argument Against Longitudinal Bulkheads.

Paramount to the other questions which seem to have been propounded for naval architects by the circumstances surrounding the loss of the French liner La Bourgogne would seem to be the degree of responsibility for the accident to be attributed to the longitudinal bulkhead. In an elaborate discussion of this phase of the question, a writer on naval subjects in the Scientific American says:

"We refer to the fact that the ship commenced to heel heavily from the moment she was struck, and that the decks before she went down were inclined at an angle of 45°. This heel was due to the fact that the longitudinal bulkhead which divides a ship from stem to stern into two equal halves prevented the intruding water from passing clear across the vessel, and threw her out of trim. As the heel increased, the water must have risen above the lower and possibly the upper row of gangways and portholes, and finding its way in through these it must have hastened the end. It was the longitudinal bulkhead that caused the British battleship Victoria to capsize after she was accidentally rammed by the Campdown. Had the water been free to flow clear across the vessel, she might have sunk until her bow was almost awash, but it is probable that she would have kept afloat long enough to be towed into harbor or run ashore. As it was, the starboard compartments being filled, while those to port were empty, the ship was thrown over to starboard until the water, rushing in through the gunports, completed the capsize.

"It is a question well worth considering whether the safety of a vessel would not be better secured by making the transverse bulkheads more numerous and dispensing with the longitudinal bulkhead except as a division between the engine rooms. In this case, if a couple of compartments were filled by the smashing of a bulkhead in collision, the ship would be filled clear across from side to side, and she would merely settle low in the water, without any dangerous list to one side or the other. The question is well worth the careful consideration of our marine architects and builders."

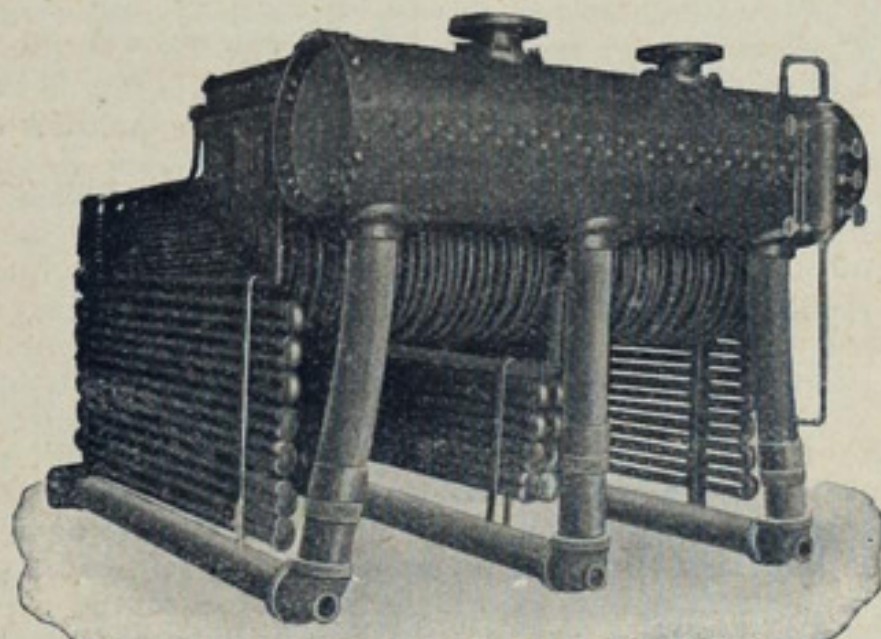
Rear Admiral McNair, who as chairman of the light-house board has been making a tour of inspection of the lake districts, had a short term of service in that position. He has been appointed commandant of the Annapolis naval academy, and will be succeeded as chairman of the light-house board by Commodore Rush Wallace, retired.

The Chautauqua Assembly is now in session. Realizing the popularity of this delightful summer resort and the benefits to be acquired at such an educational center, the Nickel Plate road has authorized an excursion to that point on July 29. The low rate for this occasion is one of the predominant features, while a splendid road-bed, fast time, courteous employees, elegant sleeping cars, and an unexcelled dining service, combine to render a trip over that popular line most enjoyable.

128, July 28

Boilers as a Factor in Speed.

Probably never before has speed been so prominent a factor in vessel construction as at present. Not only have marine architects accorded it an increased degree of attention, but the general public is fast coming to regard it as one of the primary components of efficiency in a vessel. The cause of this is not difficult of discernment. There can be no doubt that it has been induced largely by the contests of speed between transatlantic liners and by the great effort for the attainment of supreme speed in torpedo boats and destroyers. Simultaneously with this more general attention to the question of speed has come the recognition of the fact that its development in the present degree is due largely to the water tube boiler, with its capabilities for a thorough circulation of water through all parts at one temperature, high pressure and rapid generation of steam. The success of the latest design of boiler of this type is illustrated by the recent trial of the steam lighter Clara at New York. The Clara had been fitted with the old return tubular type of boiler, but her owners replaced this with one of the Boyer sectional water tube type, and during the trial the engines, although of the best make, were found to be inadequate to the



BOYER SECTIONAL WATER TUBE BOILER.

task of using the steam as fast as it was generated. Moreover the run down the bay was accomplished in the face of a head wind and a cross, choppy sea. The vessel rolled heavily, but at no time did the water in the gauge glass disappear, a circumstance which surprised the engineers on board.

The Boyer boiler is claimed to be of entirely new design, some of the points of superiority claimed for it being the perfect accessibility of all parts of the boiler for inspection or repairs, the circulation being short and rapid, insuring the quick generation of steam. The boiler has a low center of gravity—a feature claimed to be especially valuable in marine practice—with no joints in the fire and no dead ends. It is also said to occupy less space in width, length and height than any other boiler, and does not require a brick casing. Another feature claimed is that the construction of this boiler is such that there is but slight variation in steam pressure immediately upon stopping or starting the vessel.

In this connection it might be noted that in the recent naval engagement at Cardenas, the torpedo boat Winslow's boiler was pierced by a shell from the enemy, with no casualties reported from the fire room. The reason of this was that the boiler aboard of the Winslow is one of the water tube type. The government has taken cognizance of this report and has stipulated in the call for bids for the new torpedo boats that the boilers shall be of the water tube type, as this is the only kind that lessens the danger to the fire-room force if the boiler is struck by a shell, as only the tubes injured are liable to explode.

Trade Notes.

The Henry R. Worthington pump concern will furnish the feed, fire and air pumps and the distilling and refrigerating apparatus, with other fittings connected therewith, for the new yacht that the Bath Iron Works has under construction for Col. O. H. Payne of New York. The yacht is to be the largest in American waters and one of the finest of her type, and the pumps will be of the most improved character.

The Babcock & Wilcox Co. has just issued the thirtieth edition of their book, "Steam." This book has been for years one of the standard works on water tube steam boilers and on boiler practice generally. The present edition contains much new matter. It is beautifully printed and illustrated and substantially bound, and is sent free to anyone in any way interested in the generation of steam.

Since war operations have begun, the Wells Light Mfg. Co., 44 and 46 Washington street, New York, has been busy making shipments of their lights to various places to meet the needs for brilliant and efficient illumination at fortifications, for coast line defense, etc., which they completely fill. This company has also made a large consignment of their lights to Cuba, within the past few days, as the Wells light has proven itself to be one of the very necessary outfits of war.

Engineers who secured a copy of the little volume "Graphite as a Lubricant," issued last year by the Joseph Dixon Crucible Co., will be interested in the announcement of the issuance of the 1898 edition of this instructive work. Some of the matter is new, notably that relative to the lubrication of gas engine cylinders and the description of a hand oil pump. The Dixon company will be glad to send a copy of the book, as well as samples of graphite, to any engineer interested in better lubrication.

A decidedly unique and interesting circular has just been handed us by Mr. Walter Miller, general agent on the great lakes for the Baldt stockless anchor. This circular is printed entirely in Chinese, and, but for the illustrations, would be wholly incomprehensible. The Baldt Anchor Co. has succeeded in securing many orders for their anchors from China, and their business from that section has reached such proportions that it seemed advisable to publish a pamphlet especially for their Chinese cus-

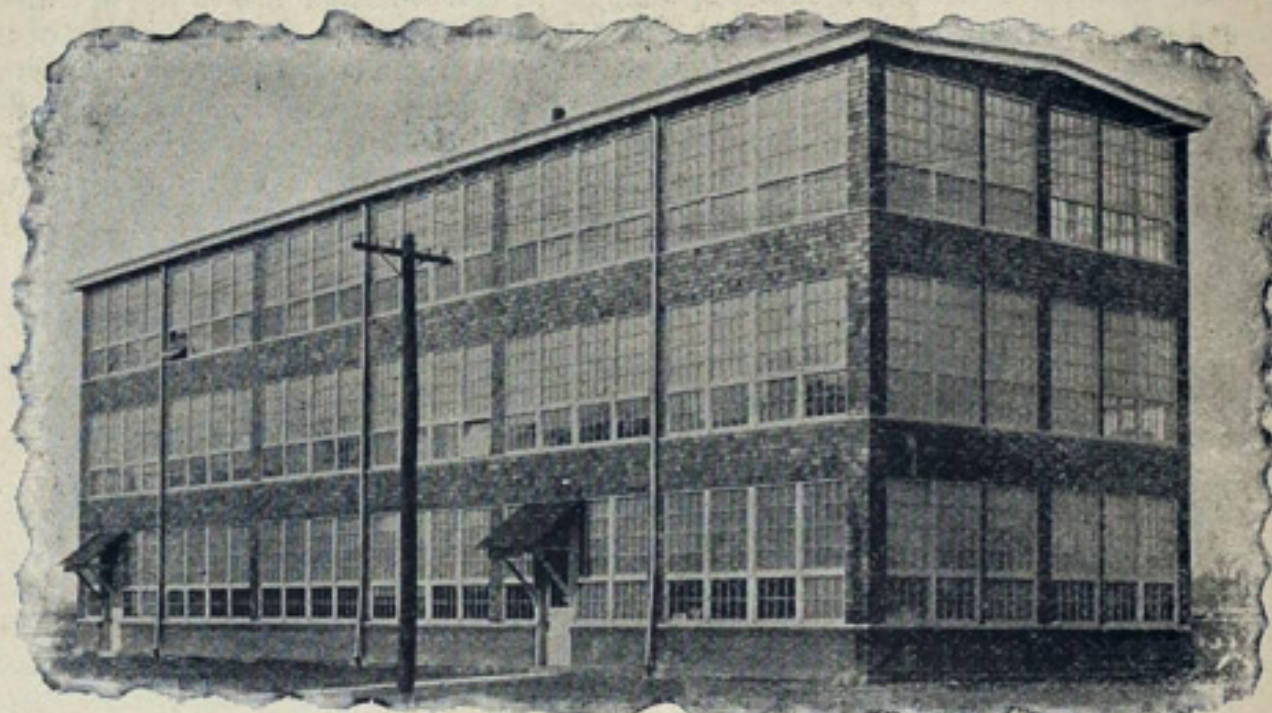
tomers. One of the peculiarities of this pamphlet is that it reads from back to front. The reading matter and tables of weights and prices are all in hieroglyphics, which look much more like hen's tracks than anything else.

President Richard Hammond of the Lake Erie Engineering Works, Buffalo, is jubilant over the fact that his firm has just received the contract to build a triple expansion engine and two immense boilers for a new ocean steamer. Five months will be required for the completion of the contract, and during that time it will be necessary for the plant to be operated day and night. Inasmuch as Mr. Hammond is figuring on additional work for the company by which he has just been awarded the contract above mentioned, he naturally is not inclined to disclose its identity.

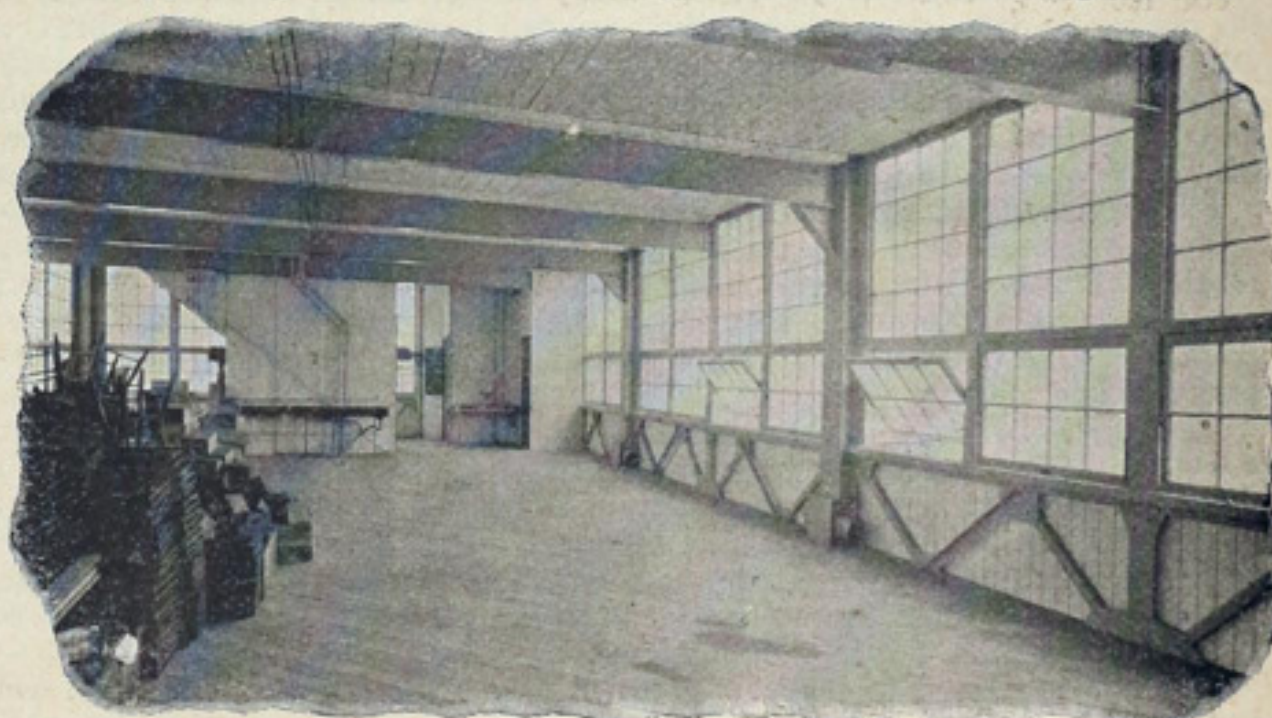
The annual meeting of the stockholders of the Bethlehem Iron Co. was recently held in Bethlehem, Pa. There were represented 81,461 shares, having a combined value of \$4,073,050. The annual report of the president, R. P. Linderman, was accepted, after which the following board of directors was elected: R. H. Sayre, Sr., Joseph Wharton, E. P. Wilbur, R. P. Linderman, Beauveau Borie, J. B. Lippincott and R. W. Davenport. The board subsequently organized by re-electing R. P. Linderman, president; R. H. Sayre, Sr., first vice-president; R. W. Davenport, second vice-president; C. O. Brunner, treasurer, and A. S. Schropp, secretary. The net earnings of the company for the year were \$1,083,000. Out of this amount two dividends of \$200,000 were paid, and the balance of \$683,000 was placed to the credit of the profit and loss account, which now amounts to \$5,370,000. The report also shows an excess of current assets over current liabilities of \$3,140,000.

Steel and Glass Building Construction.

Ship and engine builders on the lakes watched with considerable interest the experimental phases of the construction by the Chicago Ship Building Co. last year of a machine shop constructed almost exclusively of steel and glass and which was described at length in the Review at the time. The numerous advantages to be secured in such a structure were at once admitted, but the question was raised as to whether they would not be offset by the excessive heat that would be drawn in summer by the



immense expanse of glass. The experience of the Chicago company this summer has proven these fears ill founded, as ventilation is perfect with an open shop of this kind, and they have not even felt the need of utilizing a preparation suitable for painting the windows and said to materially decrease the intensity of the sun's rays. Now another machine shop similar in character has been designed and built by the Berlin Iron Bridge Co. of East Berlin, Conn., for the Veeder Mfg. Co. of Hartford, Conn. The supporting framework is entirely of steel. The building is 30 by 110



feet in size, the three floors giving nearly 10,000 square feet of floor surface. The glass is so arranged that the entire building may be easily thrown open, each panel swinging on a center pivot. A very important feature of the structure is the heating of the interior by means of hot air forced through the supporting columns. This is, of course, quite as great an advantage in summer as in winter, as it is quite as practicable to blow cold air into the interior of a building as hot air, and here again there is emphasized the necessity of having the glass sides open and close freely and easily in order to insure a free movement of air.

Intelligent people are always looking for an opportunity of increasing their store of knowledge. Chautauqua, N. Y., is without a peer as a place to brush away the cobwebs. A low-rate excursion via the Nickel Plate road offers another opportunity of attending this justly famous summer school. The agents of that line are glad to furnish detailed information.

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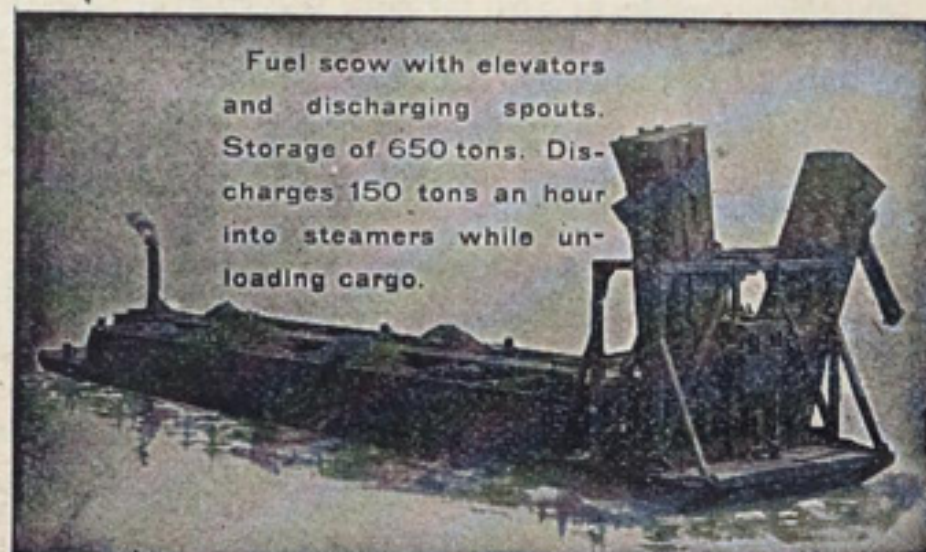
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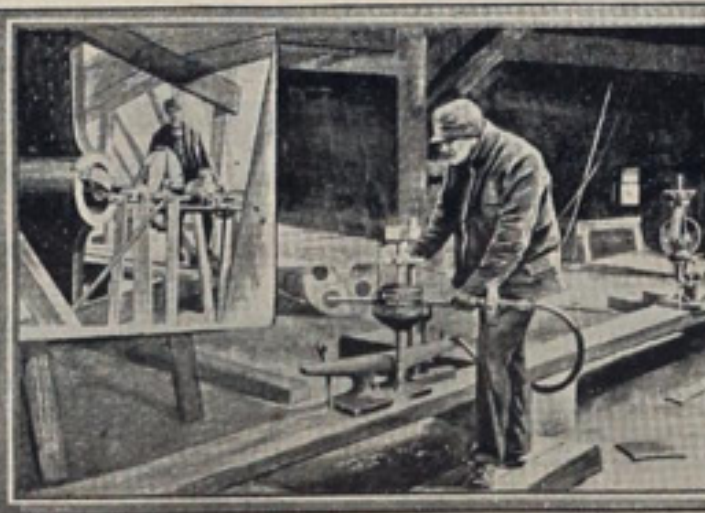
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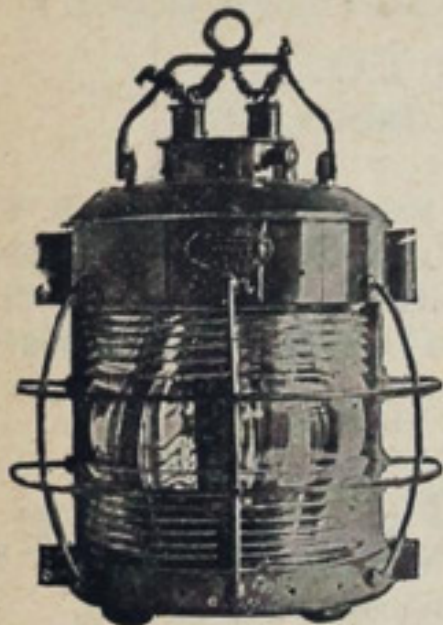
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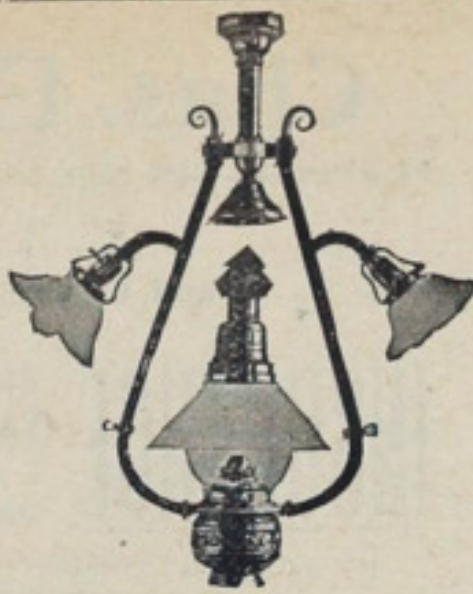
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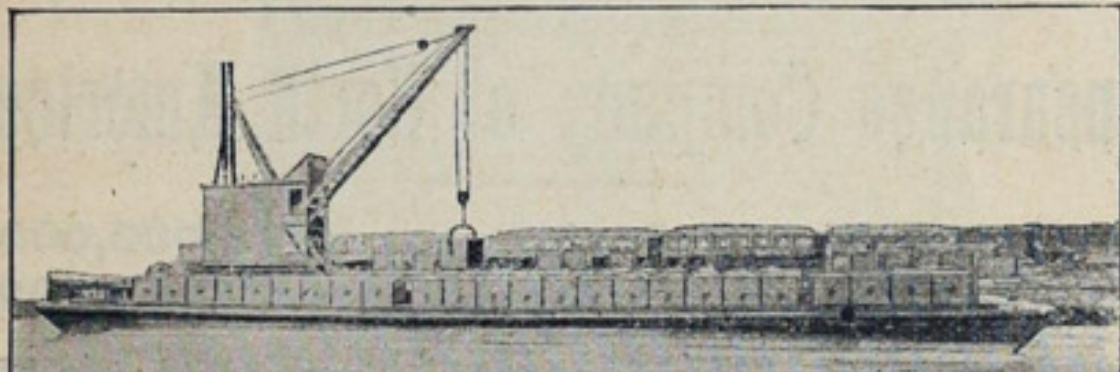
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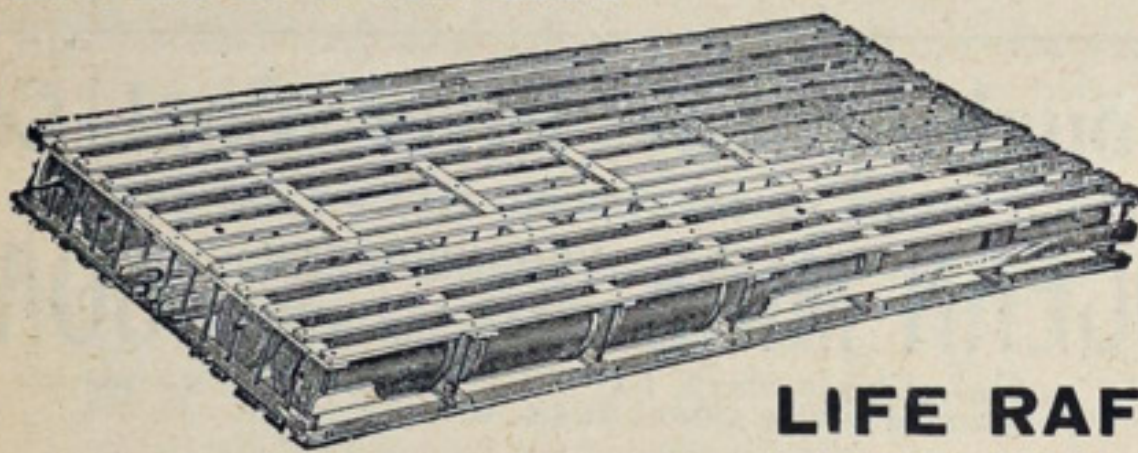
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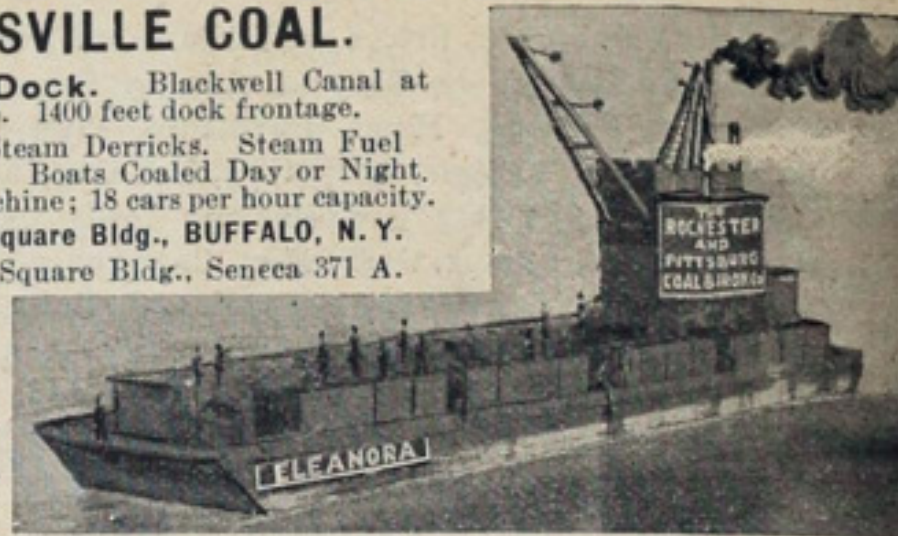
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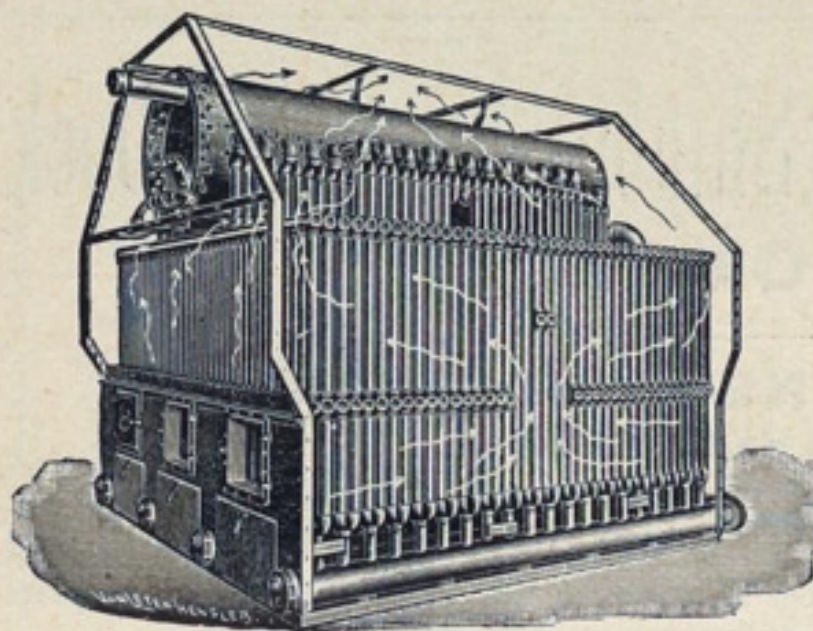
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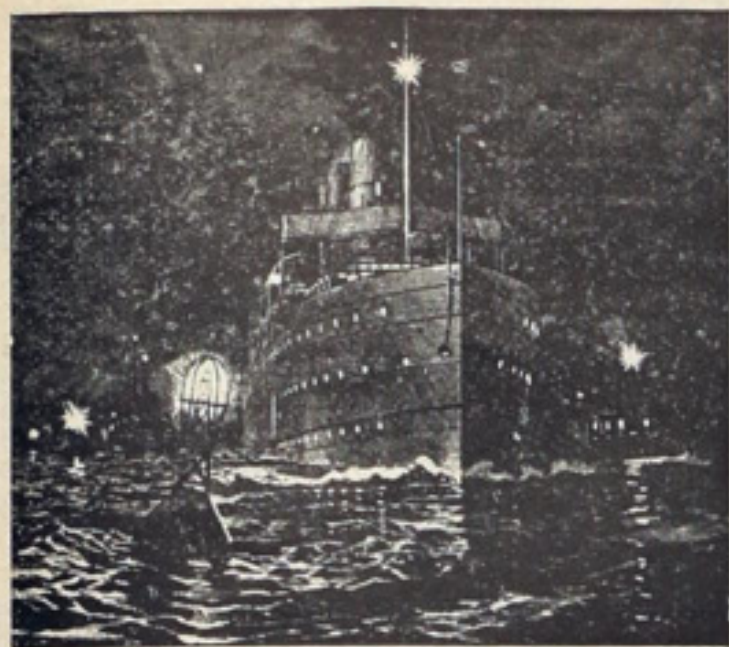
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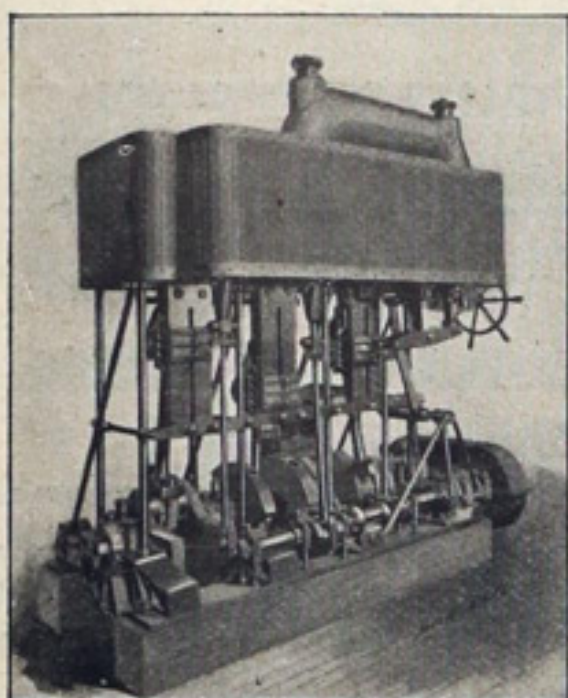
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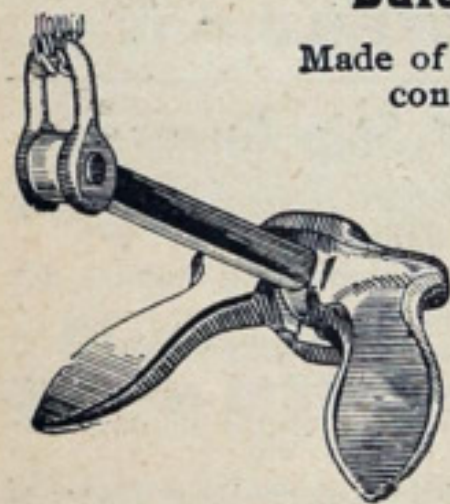
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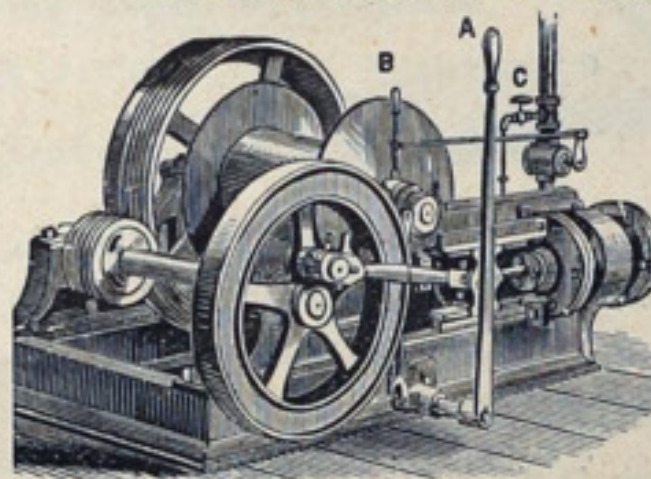


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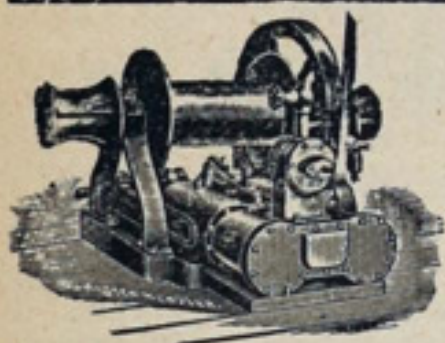
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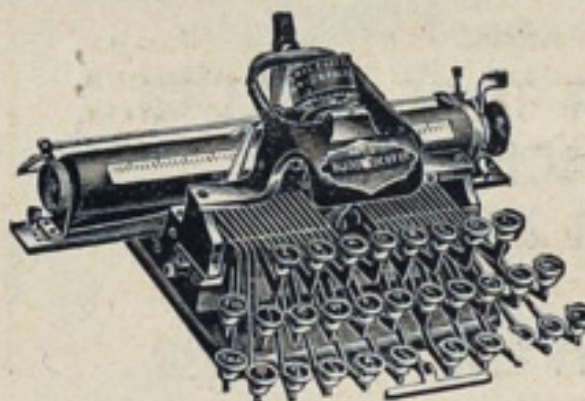
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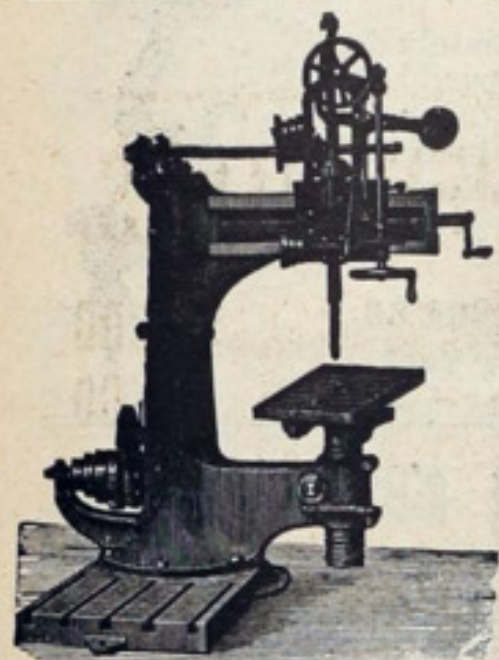
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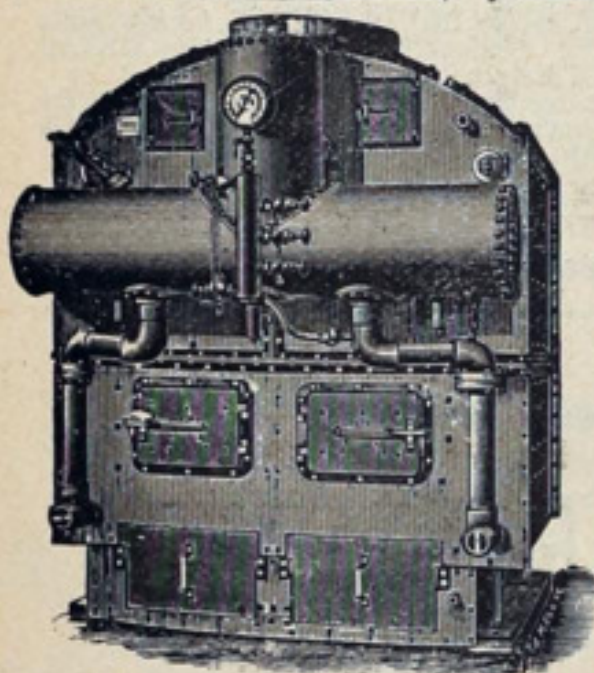
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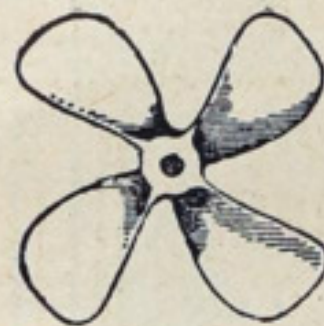
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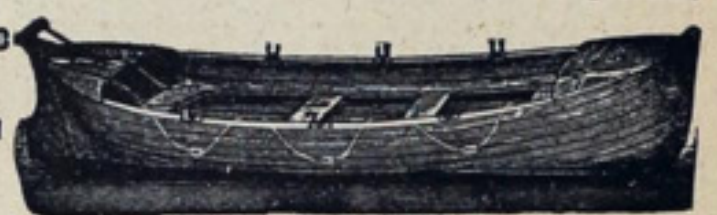
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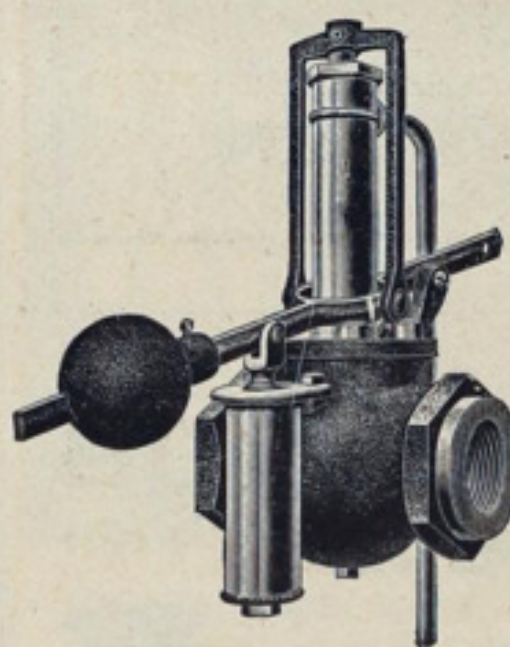


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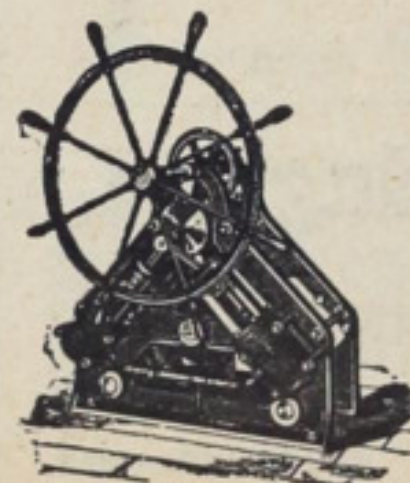
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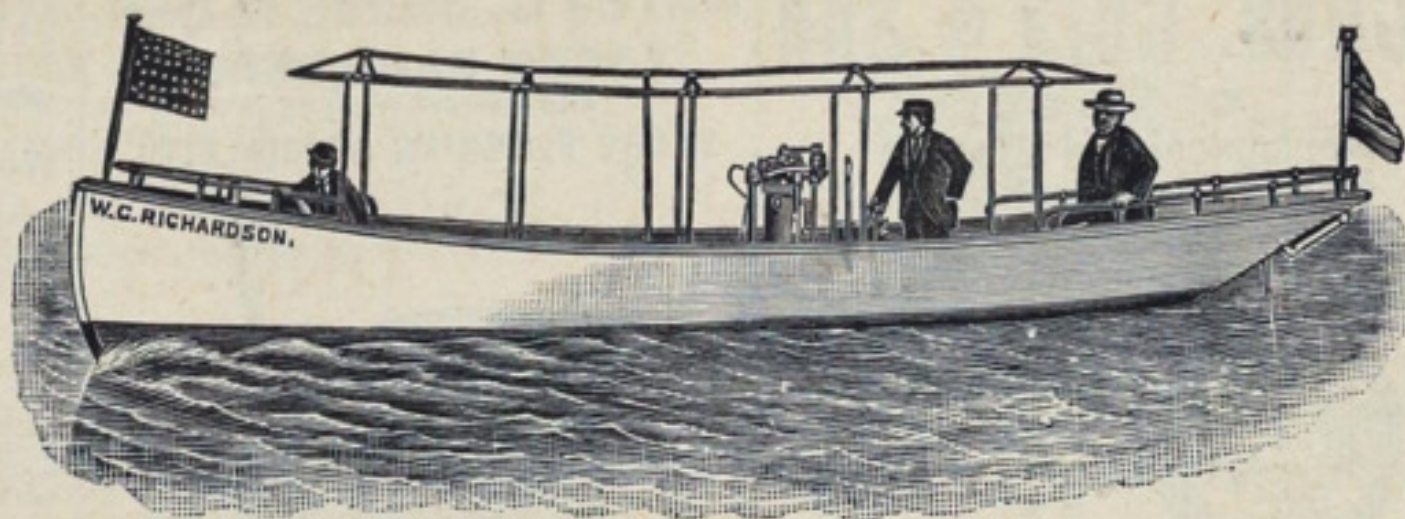


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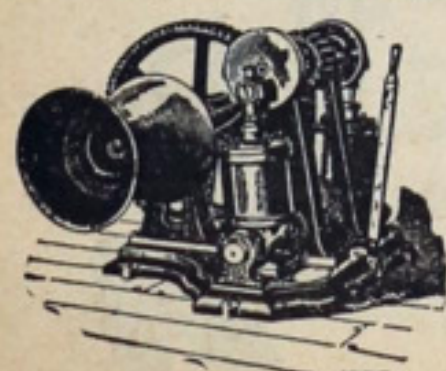
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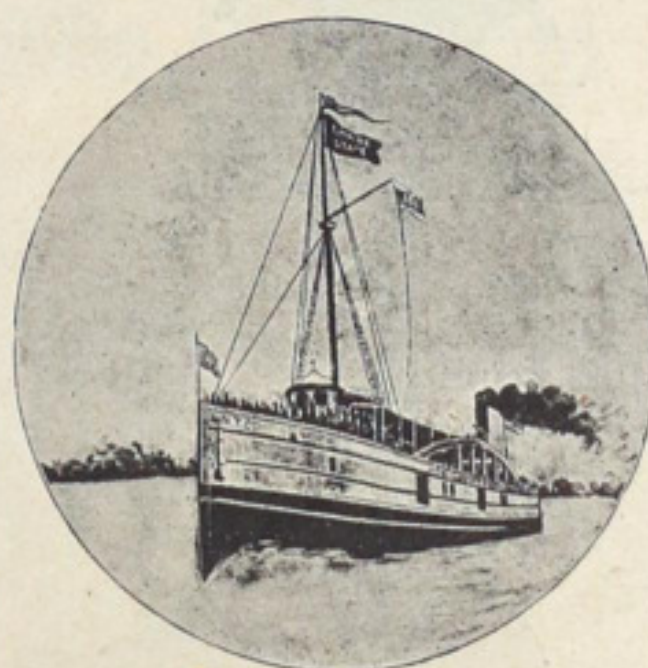
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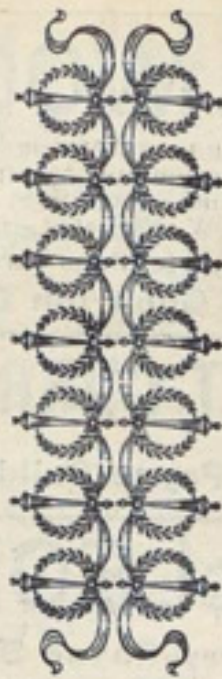
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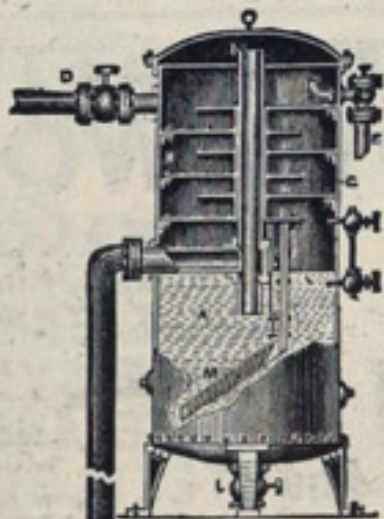
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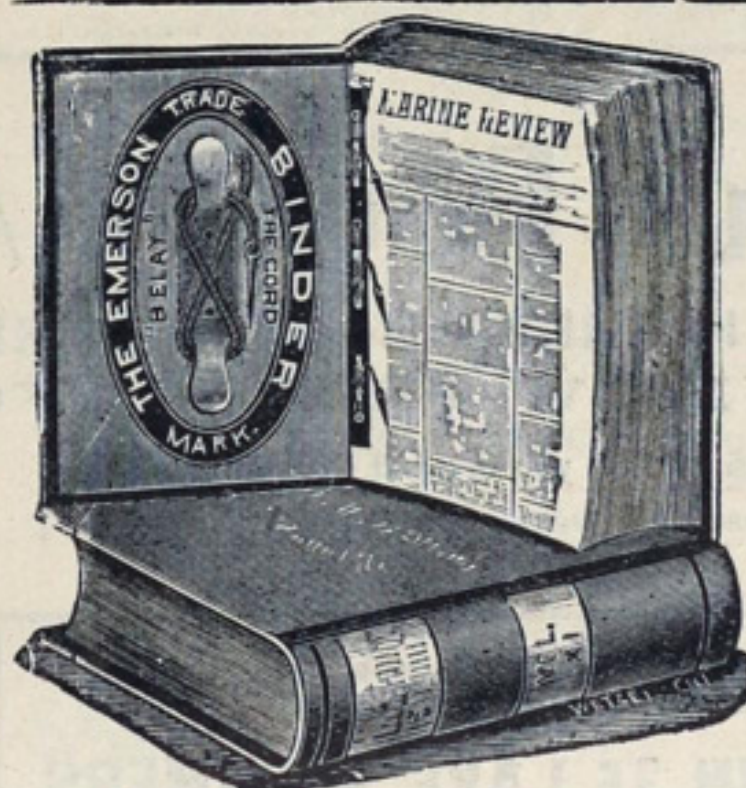
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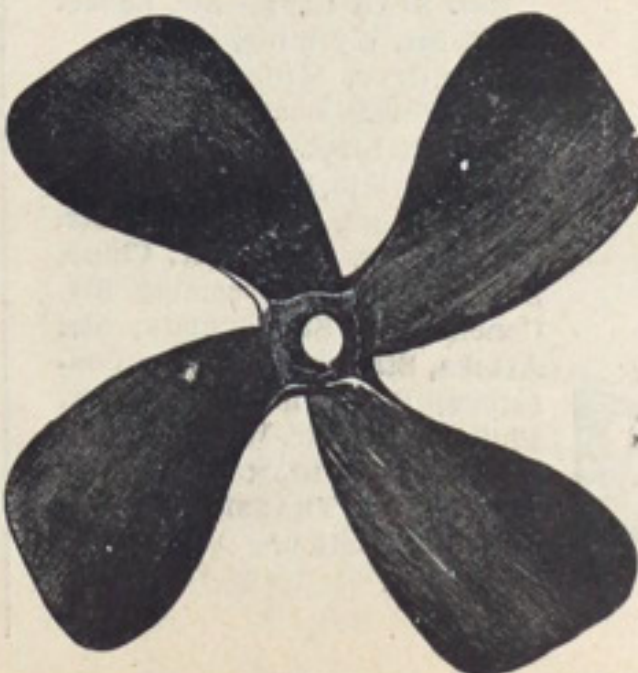
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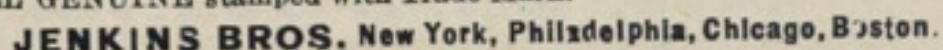
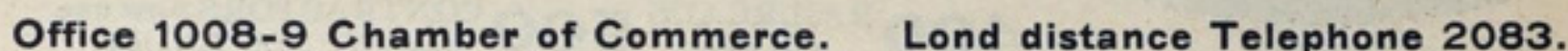
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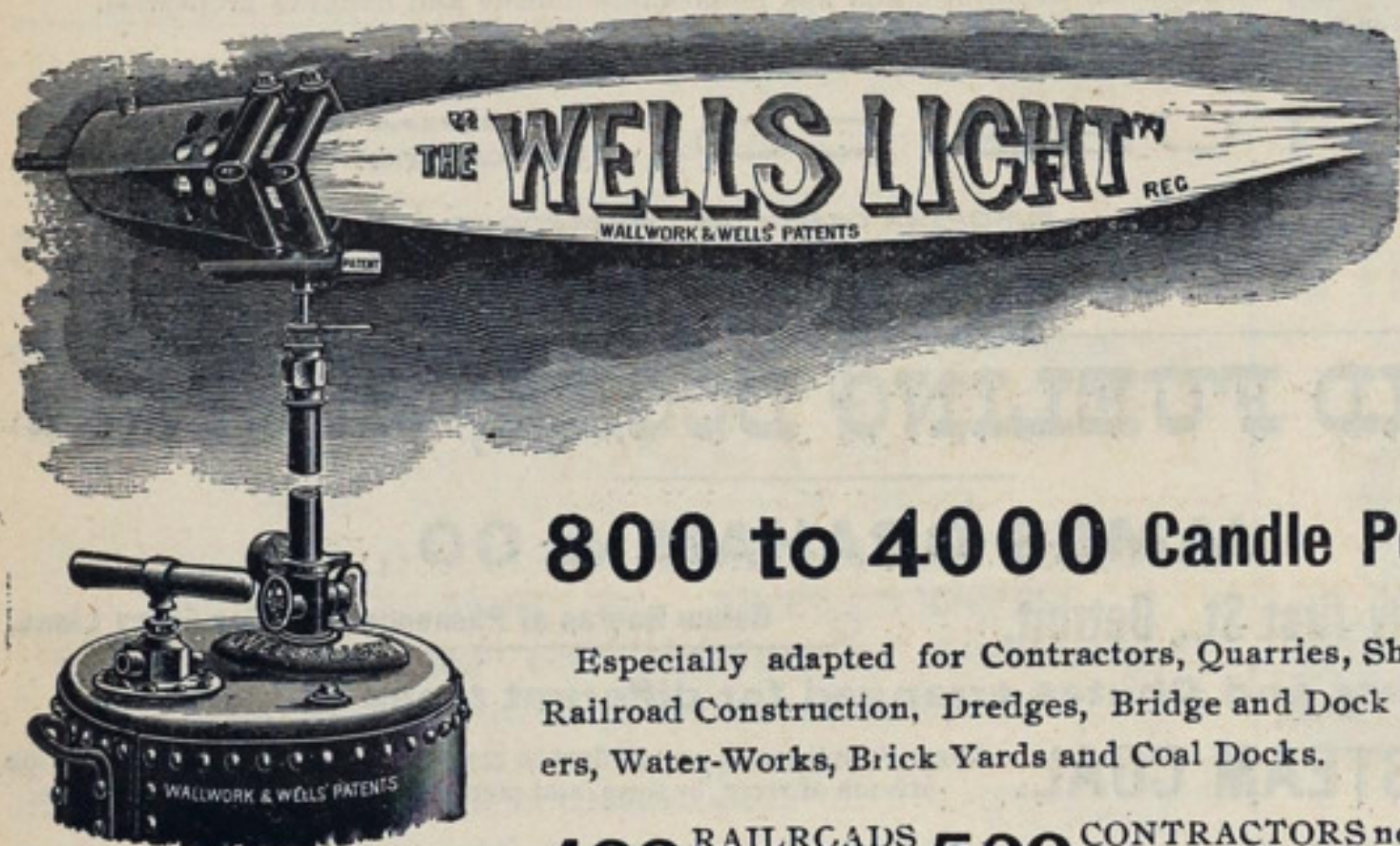
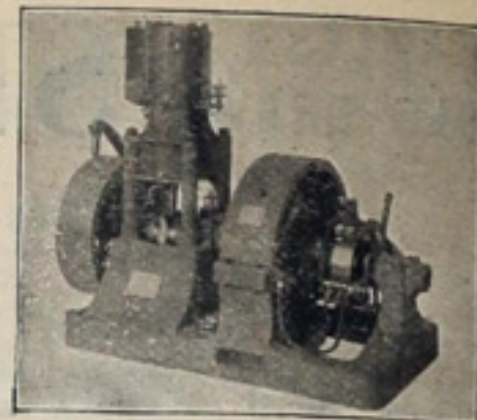
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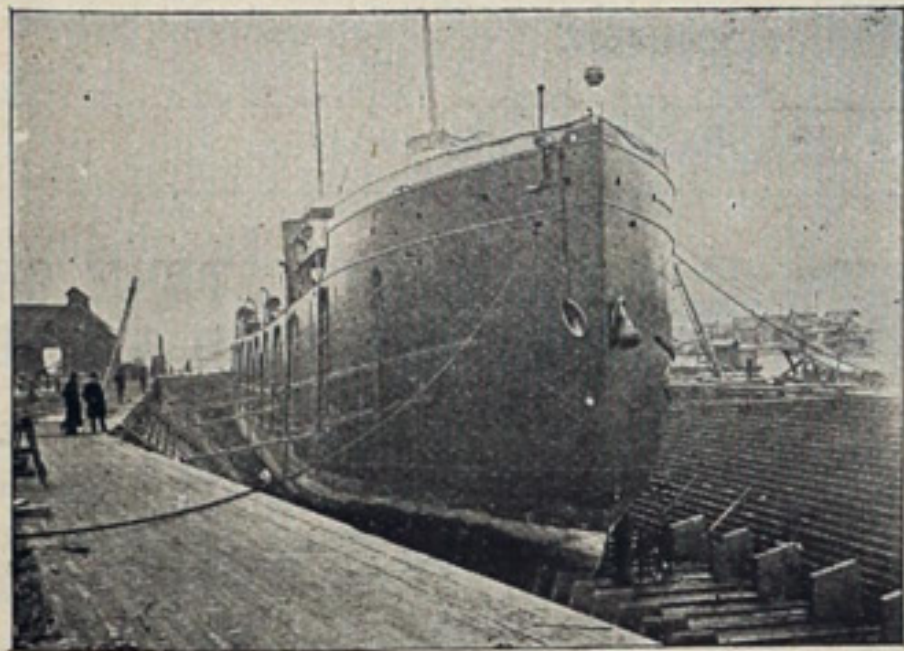
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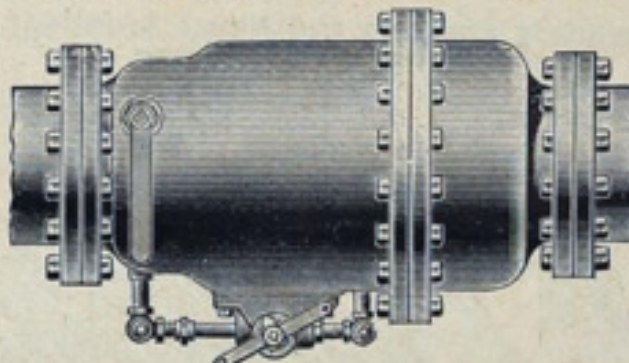
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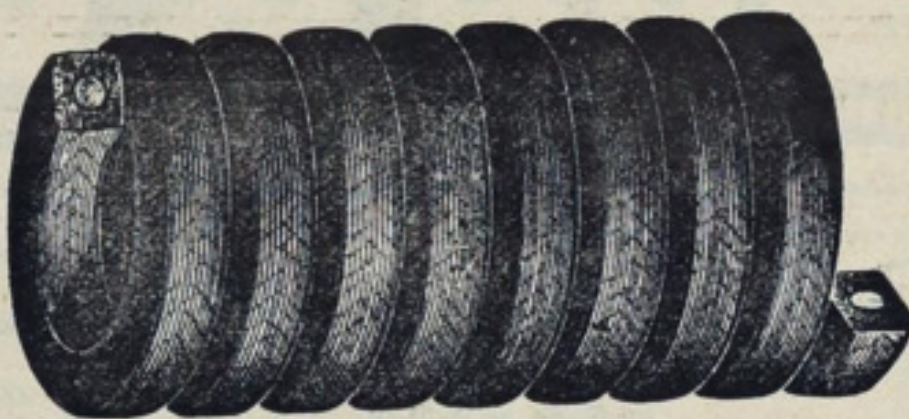
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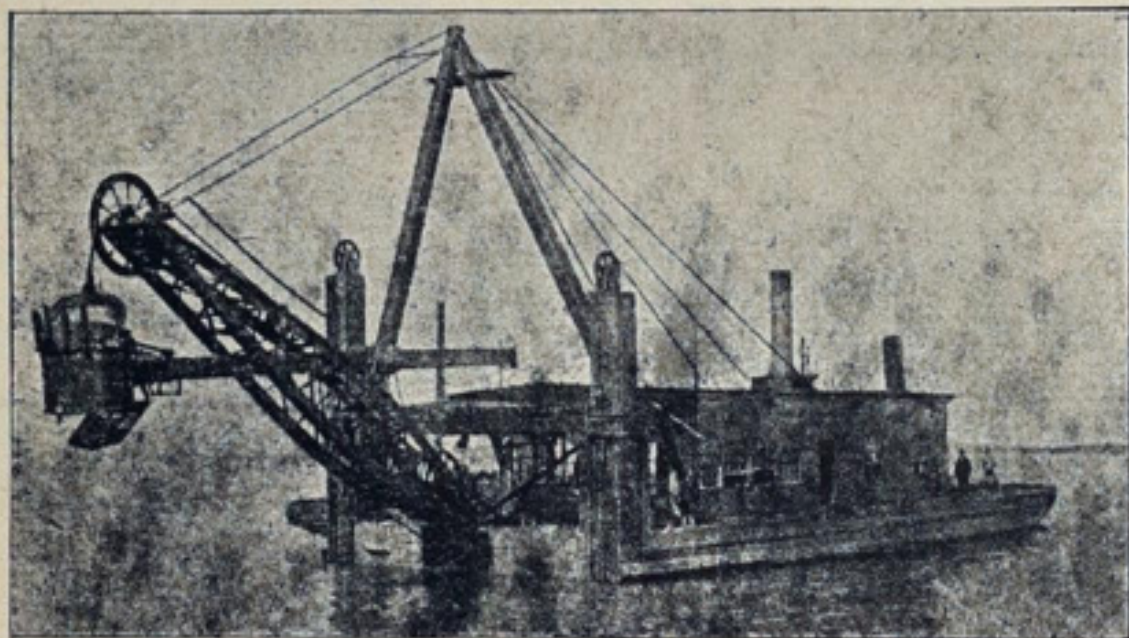
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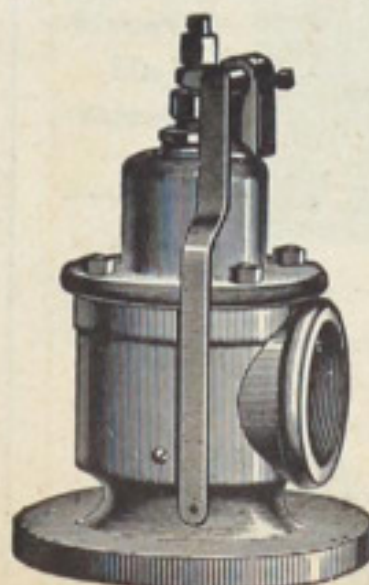
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